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THE
"SANITAS"

PLUMBING APPLIANCES.

8.30.87

Described in the

"Am. Architect and Building News"

for 1883-84-85, in the articles on "Sanitary Plumbing," as the nearest to perfection of any Plumbing goods now known.

Also recommended in

The "Century" Magazine

for December, 1884, in the article on Plumbing, by Col. George E. Waring, Jr., the well-known authority on Sanitary Drainage, who describes the trap as the best in the market.

Also ranked highest in the later

Standard Works

on Sanitary Engineering and Plumbing of
William Paul Gerhard, C.E.,
and others.

THE
"Sanitas" Manufacturing Co.,

207 Tremont St.

~~4 Pemberton Square, Boston.~~

AGENCIES:

*For the Western States, including Detroit, Cincinnati, Atlanta,
and all west of the line running through these cities:*

THE N. O. NELSON MANUFACTURING CO.,

of St. Louis and Kansas City.

For the Middle States:

THE STANDARD MANUFACTURING CO.,

of Pittsburg, Pa.

For New York City, Brooklyn, Hoboken, and Jersey City:

MILLER & COATES,

of New York City, N.Y.

For the Eastern States, west of the Connecticut River.

PECK BROTHERS & COMPANY,

of New Haven, Conn.

For England:

GEORGE FARMILOE & SONS,

of 34 St. John's st., London, E.C., England.

WILLIAM E. HOYT, C.E., S.B.,

late member of the Massachusetts State Board of Health,
in his lecture on "Household Sanitation," delivered before
the Academy of Sciences, at Rochester, N.Y., in January,
1886, writes:—

"I know of nothing to compare with the Sanitas appliances in convenience, efficiency, and safety. They should be regarded in the same light as valuable discoveries in medical science. By the use of these devices we are able to avoid, in a great measure, the evils resulting ordinarily from bad plumbing."

THE
"S A N I T A S"
 ANTI-SIPHON SELF-CLEANSING
T R A P.

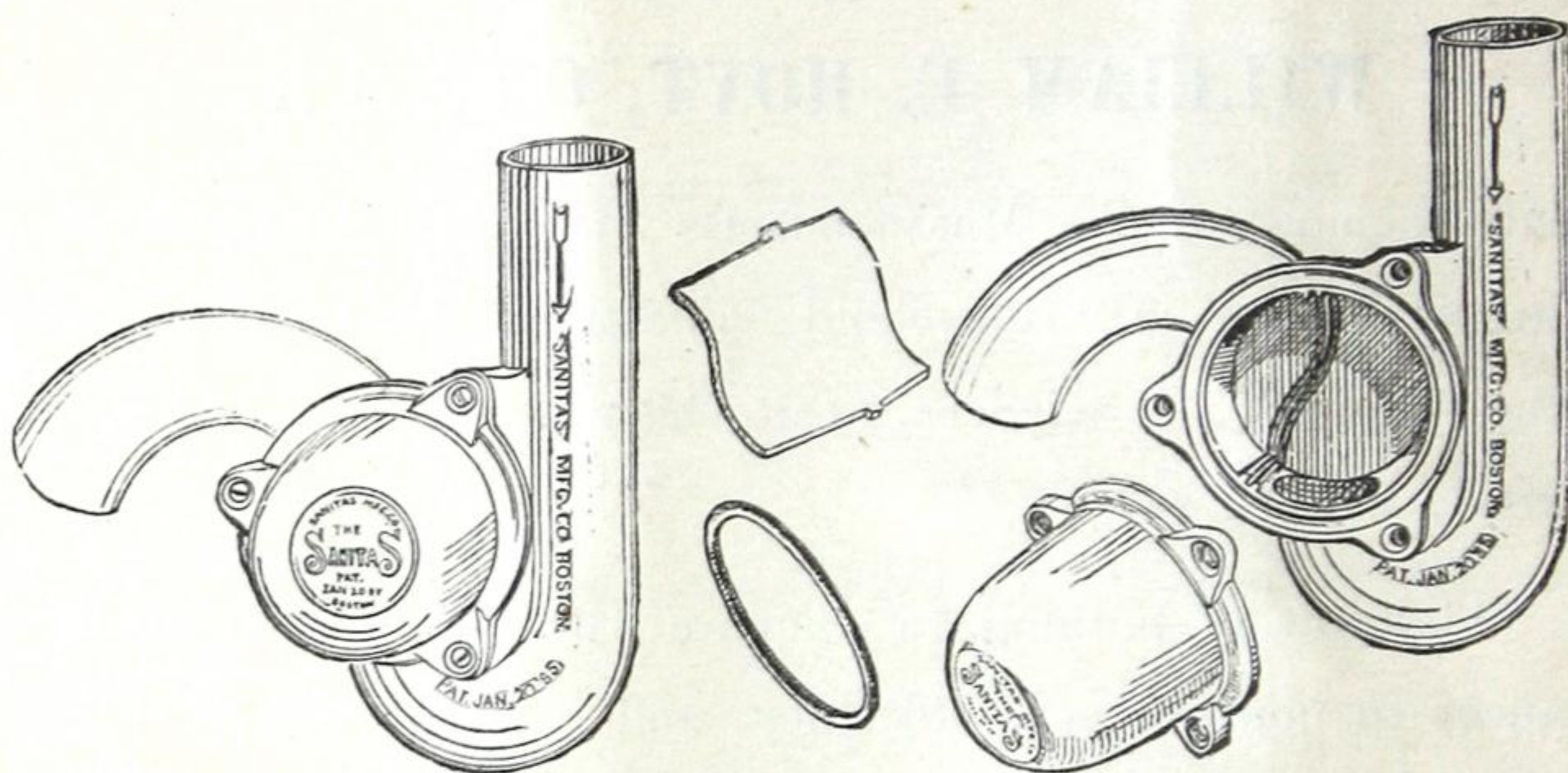


Fig. 1. — "Sanitas" Trap.

*The only Self-Scouring Water-Seal Trap which
 retains its seal against*

SIPHONAGE, BACK-PRESSURE, EVAPORATION,

And all other Enemies of the Seal of Traps.

It may be safely used either

With or without Special Trap Ventilation,

and is a

Perfect Protection against Sewer-Gas.

The Trap is a 1½-inch trap, and is suitable for wash-basins, bath and laundry tubs, pantry and kitchen sinks, and all other fixtures whose outlet at its most contracted point does not exceed 1½ or 2 inches in diameter.

For Sale by all Dealers in Plumbers' Supplies.

THE "SANITAS" TRAP.

It has been demonstrated that the seal of this trap, even unventilated, cannot be destroyed by siphonage or other adverse influences liable to affect traps in plumbing.

Hence special trap ventilation and its accompanying serious evils of complicating the plumbing, destroying the water seal by evaporation, and greatly increasing the expense of the work, may, by using this device, be avoided.

It is now well known that trap ventilation forms no reliable security against siphonage. Under certain simple conditions, often met with in practice, the discharge of a water-closet will siphon out an S trap fully vented, but the same discharge will leave the seal of the unventilated "SANITAS" trap intact.

The "SANITAS" trap has the self-scouring principle of the ordinary S trap with the antisiphonic properties of the largest Pot traps. It is free from all obstructions to the water-way, such as gates, valves, or balls, and has no working parts to get out of order.

The trap may be ventilated like other traps if required by law, and it has the advantage when so vented of not losing its seal by evaporation. For the vent may be applied below the outlet a sufficient distance to be out of the reach of the induced air current which causes the evaporation. The ordinary S trap cannot be so vented without subjecting it to the danger of self-siphonage, from which the "SANITAS" trap is free.

This trap, like all others, should be set under fixtures having as large outlets as possible, giving a rapid discharge which shall fill the pipes "full bore," and scour the trap and waste-pipes. If set under fixtures having too small or partially clogged outlets it is evident that no trap nor waste-pipe connected therewith can be kept entirely clear of sediment. The "SANITAS" trap is, however, provided with a movable clean-out cap of metal or glass, so that, even when improperly set and used, no harm can come, since the interior can

always be inspected and any obstruction at once easily be removed.

In its normal state the water level stands below the top of the clean-out cap, so that when made of glass it can be seen from without. The first actions of siphonage will lower the water to a certain extent, but subsequent actions cannot exhaust it, because ample room will then be left above the water for the escape of air which will supply the partial vacuum created by siphonage in the soil-pipe without driving the water out before it. Glass caps should only be used when a possible breakage will cause no serious harm. Metal caps are to be preferred.

THE
"SANITAS"
WASH-BASIN.

Quick Emptying, with Standpipe Overflow.

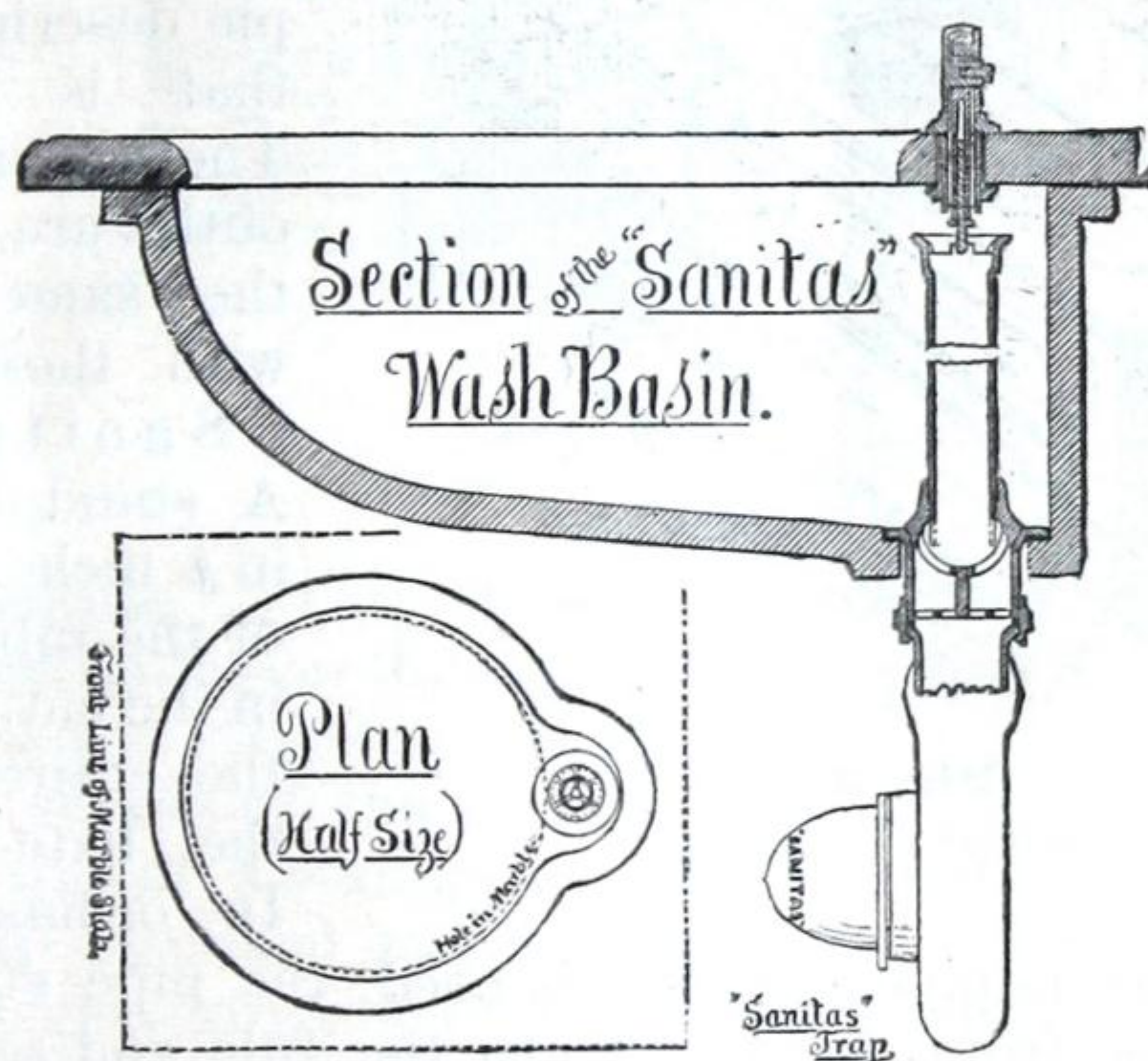


Fig 2.

"Sanitas" Basin.

This basin empties itself in from 3 to 5 seconds, scouring the trap and pipes. The overflow pipe stands in a recess in the back of the bowl, and does away with the ordinary foul secret overflow passage, and the troublesome and dirty plug and chain. A single motion of the hand opens or shuts the outlet. The strainer is attached to the stand-pipe, and both can be removed for cleansing if necessary. By this device the utmost simplicity, convenience, and cleanliness are obtained.

FOR SALE BY ALL DEALERS IN PLUMBERS' SUPPLIES.

THE
"SANITAS"
BATH-TUB.

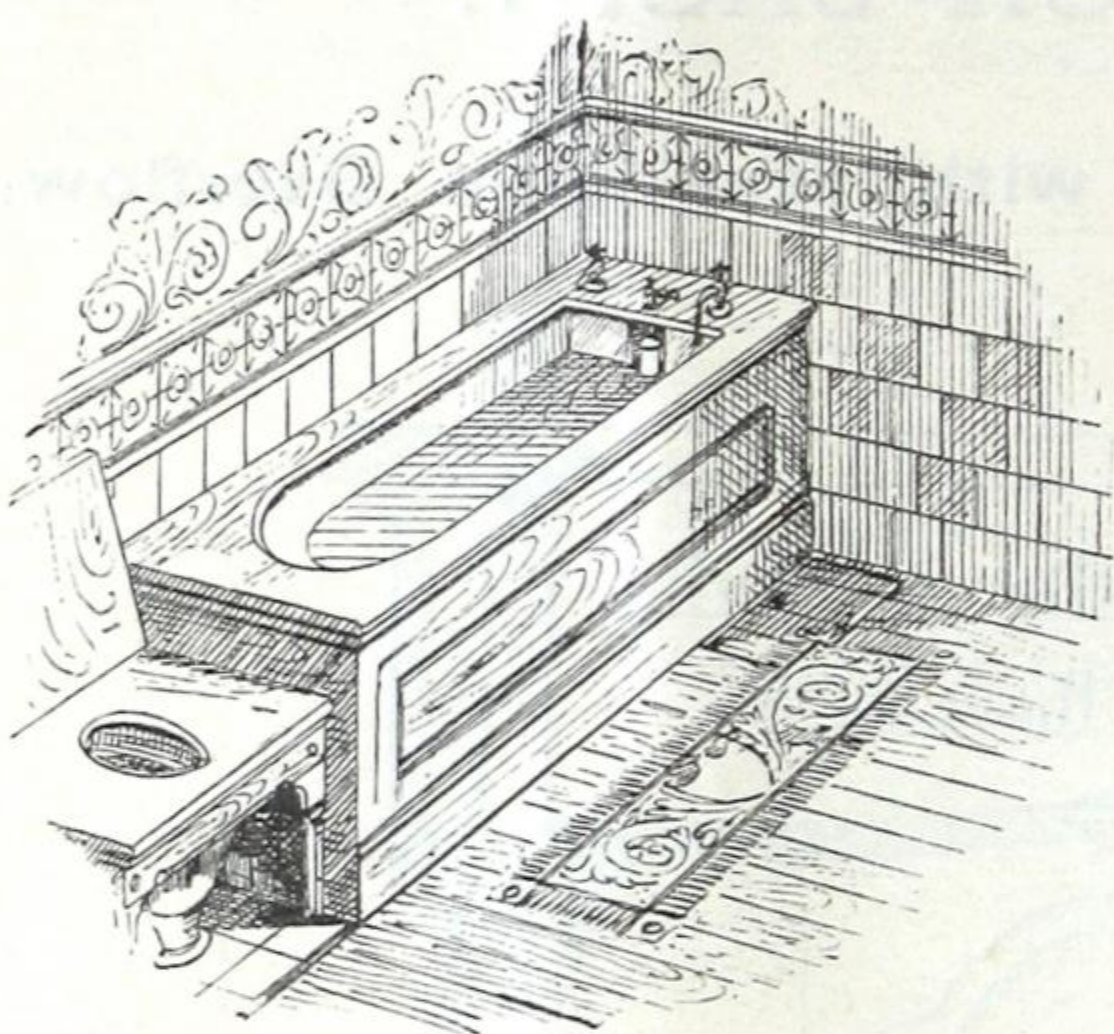


Fig. 3.
"Sanitas" Bath-tub.

The advantages and conveniences of this arrangement are so obvious that a simple description is all that is necessary. The overflow and outlet are formed on the same principle with those of the "Sanitas" basin. A standpipe stands in a niche in the end of the tub, as shown in the cut, and leaves the entire length of the bath-tub clear.

In ordinary tubs, where the standpipe overflow is used, the pipe stands out 6 or 8 inches from the back into the tub, and seriously obstructs the way, interfering with the feet of the bather. This is avoided in the "Sanitas" bath-tub by the use of the recess. The stand-pipe is raised and lowered by a simple, strongly made lever, formed and pivoted in the manner shown in the basin cut. The outlet is opened or shut by a single motion of the hand, and the stand-pipe remains in the position in which it is left. By this means the necessity of removing the stand-pipe from the bath-tub, and finding a place for it to rest upon every time the tub is emptied, and the risk of dropping it into the tub and denting or perforating the copper are avoided. The strainer is attached to the stand-pipe, and both can be removed for cleansing if necessary.

FOR SALE BY ALL DEALERS IN PLUMBERS' SUPPLIES.

THE “SANITAS”

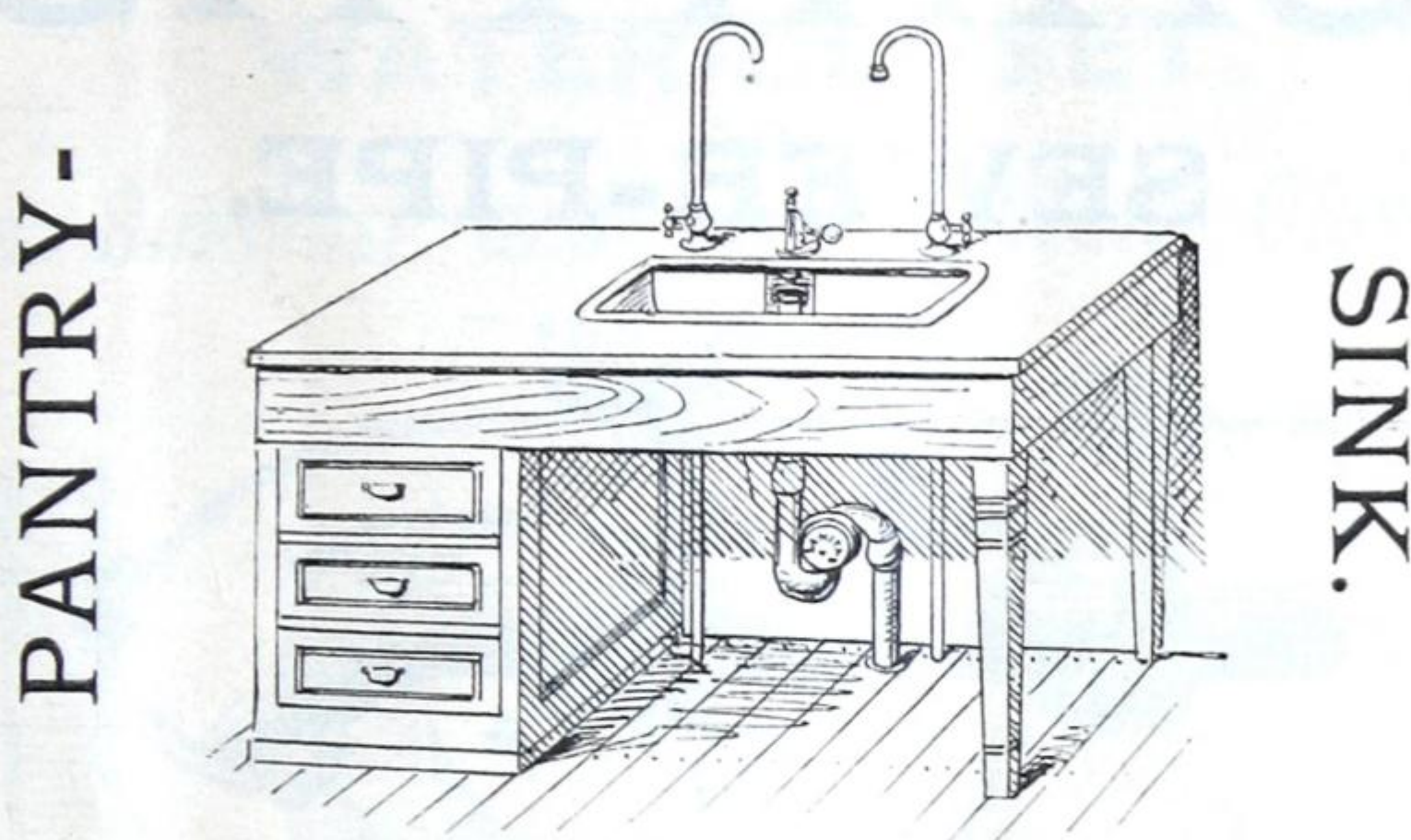


Fig. 4.
“Sanitas” Pantry-sink.

The “Sanitas” Pantry-sink is constructed on the same principle and possesses the same advantages as the “Sanitas” Wash-basin and Bath-tub. The outlet is placed in a recess at the end or side of the sink, as desired, and is opened or shut by means of a standpipe and lifting device similar to that already described and shown in the “Sanitas” Wash-basins. A very great advantage in this arrangement is that there is nothing in the way of the dishes in washing, and the water escapes so rapidly that the sink serves as a flush-tank, scouring the pipes and trap, and keeping them free of grease and other deposit.

The “Sanitas” trap is shown under the sink. This is the best and only safe trap to use under kitchen and pantry sinks, as it has no ball or valve to impede the outflow of the water or collect grease. It is more self-scouring and very much cheaper than the pot trap, and it can be more easily opened for examination than any other form of trap. Being small and placed near the sink, it does not cool and congeal the grease, but allows it to flow through it into the proper grease-traps beyond.

FOR SALE BY ALL DEALERS IN PLUMBERS' SUPPLIES.

THE
"SANITAS"
SEWER-PIPE.

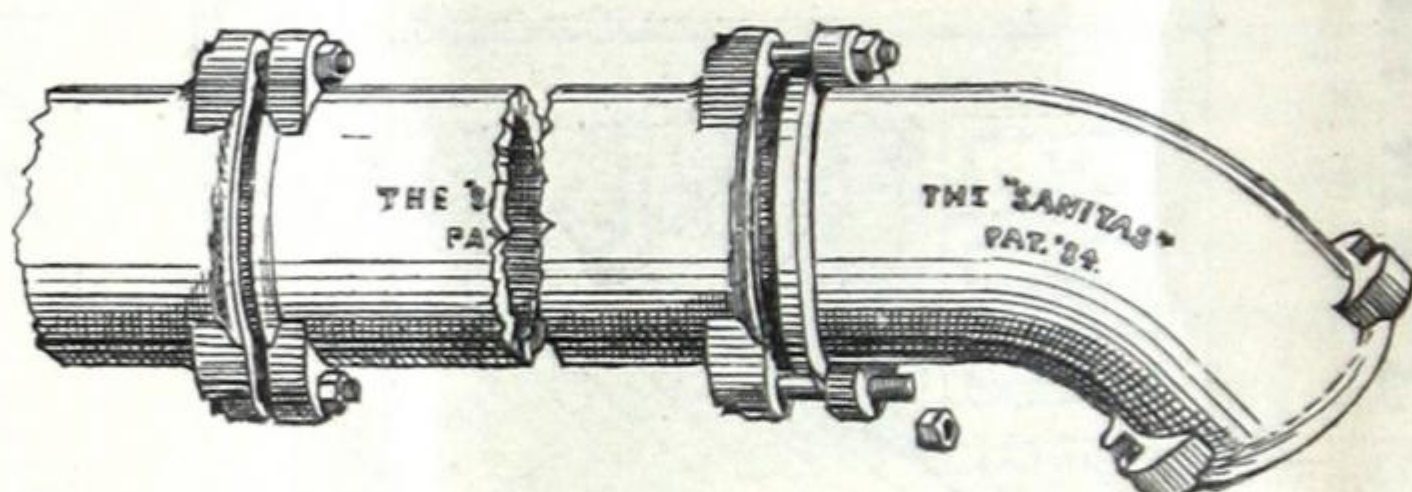


Fig. 5.
"Sanitas" Sewer-pipe.

**PERMANENTLY WATER, GAS, AND STEAM TIGHT, EVEN
UNDER HEAVY PRESSURE, OR SUDDEN
CHANGES OF TEMPERATURE.**

This pipe is made of the best heavy cast-iron, of even thickness throughout. It is jointed with the "ADJUSTABLE FLANGE JOINT" described in the *American Architect and Building News* for 1884, in the articles on "Sanitary Plumbing." The joint is simple, durable, economical, and scientific. The packing material is pure lead, cast in rings, which are star-shaped in cross-section. The rings are compressed between the flanges by heavy bolts and nuts, and absolute tightness and security against sewer-gas is thus obtained. For convenience in setting this pipe the "SANITAS" RATCHET WRENCH is sold with it by the manufacturers. By means of these wrenches the pipes may be more rapidly jointed than by ordinary wrenches.

FOR SALE BY ALL DEALERS IN PLUMBERS' SUPPLIES.

THE
"SANITAS"
WATER-CLOSET.

*The Simplest and Safest Water-Closet in
the Market.*

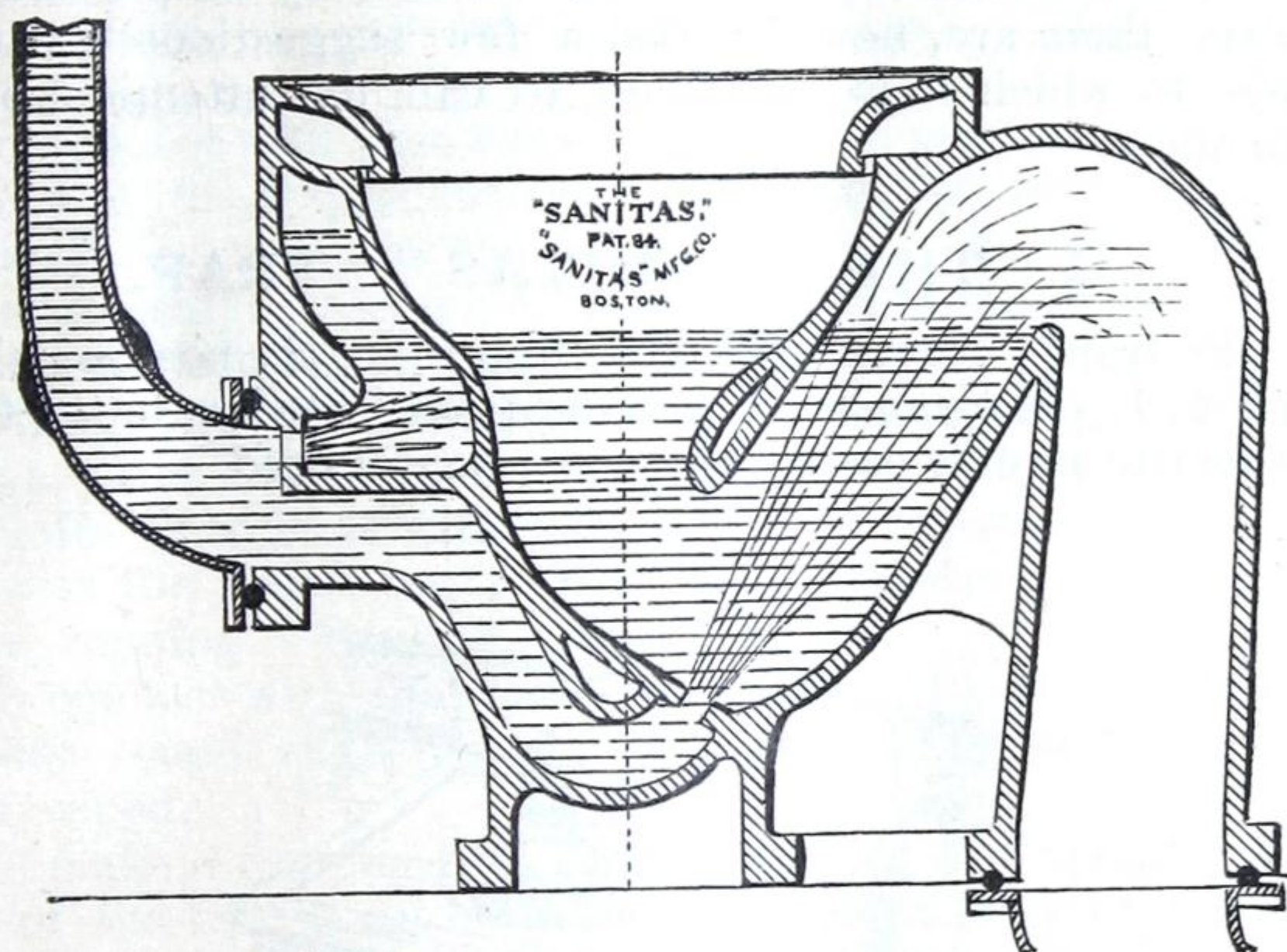


Fig. 6.
"Sanitas" Water-closet.

This is the only perfectly simple Hopper Water-closet, which holds a large body of standing water in its bowl, and works without plunger, valve, or other machinery in the closet, and without spattering or waste of water. Every part of the closet, and half of the trap, are directly visible from above, and all parts are accessible. The seal of this closet cannot be destroyed by evaporation, siphonage, or any other cause.

FOR SALE BY ALL DEALERS IN PLUMBERS' SUPPLIES.

DIRECTIONS

FOR

SETTING THE "SANITAS" APPLIANCES.

Although these appliances are extremely simple and easy to set, there are, nevertheless, a few suggestions as to details, to which it is important to call the attention of the plumber.

I. THE "SANITAS" TRAP.

The trap is placed under the fixture in the position shown in Fig. 1, the clean-out cap being placed always to the front, so that it may be easily removed when desired.

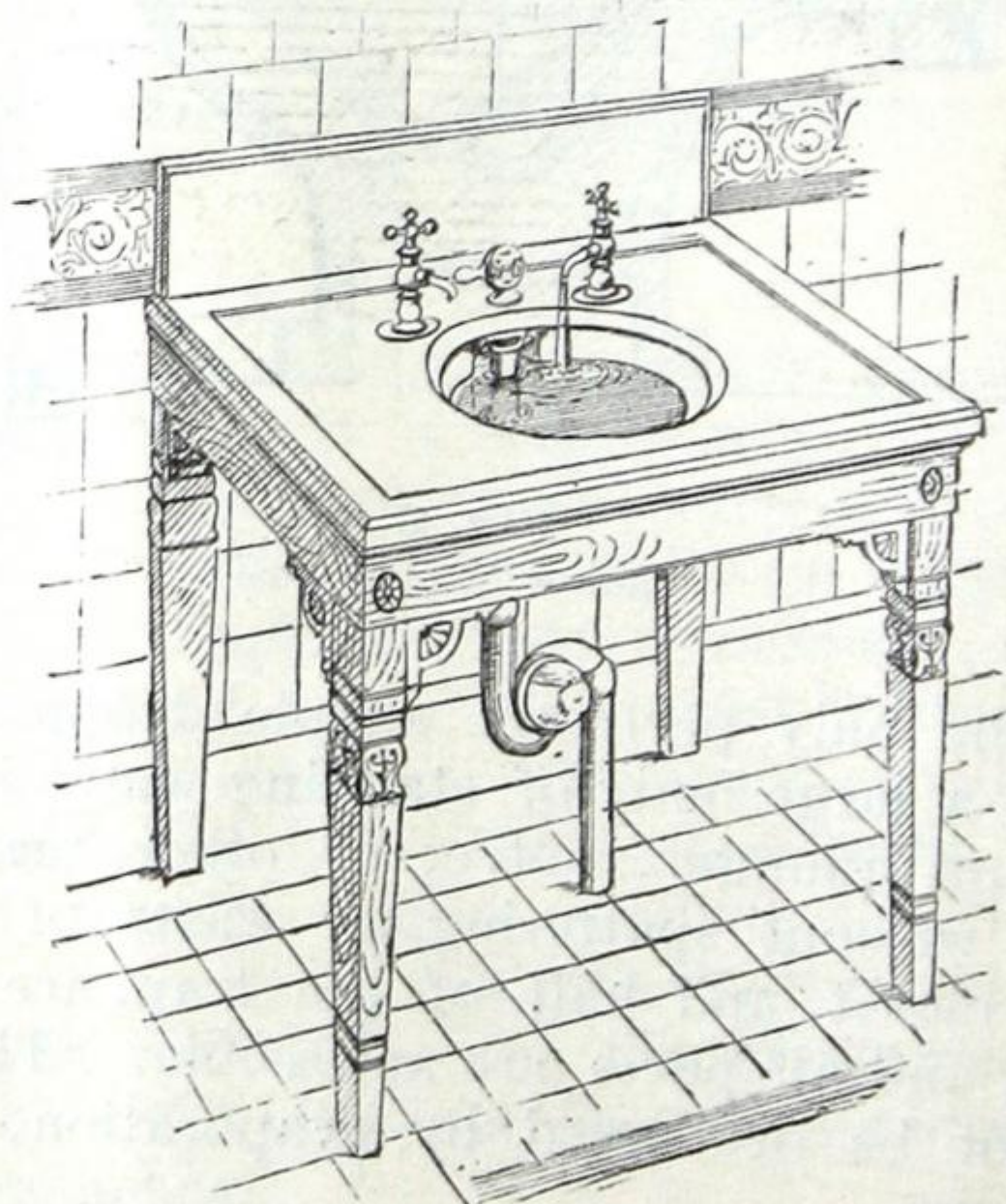


Fig. 7.

"Sanitas" Trap set under "Sanitas" Wash-basin.

The manner in which the same trap may be connected to waste-pipes in different positions or running in different directions is shown by Figs. 8, 9, 10, and 11.

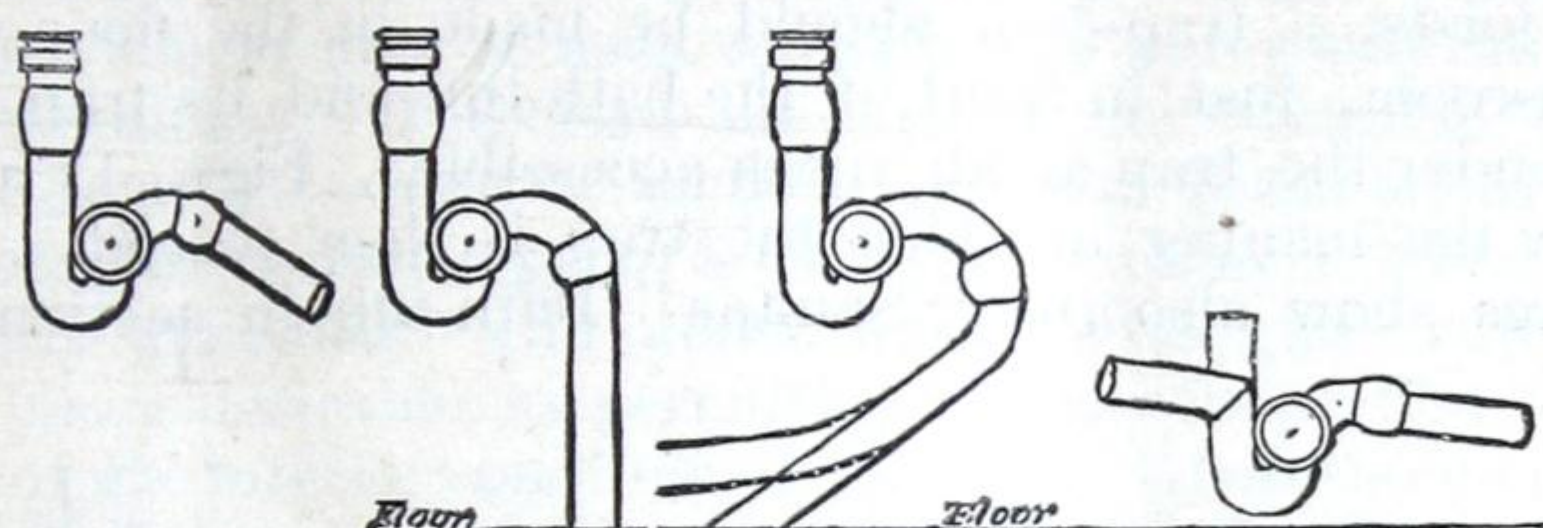


Fig. 8.
For diagonal
waste-pipe.

Fig. 9.
For perpendicular.
waste-pipe.

Fig. 10.
For reversed
diagonal waste-pipe.

Fig. 11.
For running-
trap.

To connect with pipe shown in Fig. 8, a portion of the outlet-arm of the trap is cut off by the plumber, making a half *S* trap form, and then the joint is wiped. To connect with a perpendicular waste-pipe, as in Fig. 9, the top of the waste-pipe is slightly bent to meet the bend of the outlet-arm of the trap, and the joint is wiped without cutting the trap-outlet. But "Sanitas" traps are now made both rights and lefts as well as with perpendicular outlets, corresponding with the *full S* trap. Moulds are also now being made for a running "Sanitas" trap.

To connect with the waste-pipe in Fig. 10, the waste-pipe is bent round slightly more than in Fig. 9, and the joint then wiped.

To make a running-trap the top part of the upright inlet-arm of the trap is cut off on a bevel and a piece of a pipe is mitred on at the proper angle, as shown in Fig. 11. The outlet-arm is cut off as near the trap body as joint-wiping will allow, and the connection with the waste-pipe having the desired pitch is then made as shown.

When the "Sanitas" trap is used under bath-tubs the trap may be set either between the joists under the tub or underneath the plaster of the ceiling below. The latter position is much to be preferred where it can be carried out, because it permits of easy access to the trap and leaves it constantly exposed to view, as every part of plumbing work should be. This can be done in case the room below the bath-room is not a reception or entertainment apartment. If the room below be a toilet-room, closet, pantry, or china-closet, the

trap as well as all the pipes should be placed in open sight under the ceiling.

If, on the other hand, the room be an important or ornamented one, and it is thought best to put the trap between the joists, a trap-door should be made in the floor of the bath-room, just in front of the bath-tub and its trap, so as to render the trap at all times accessible. Figs. 12 and 13 show the manner in which the trap is then placed. These figures show also the "Sanitas" Bath-tub in section.

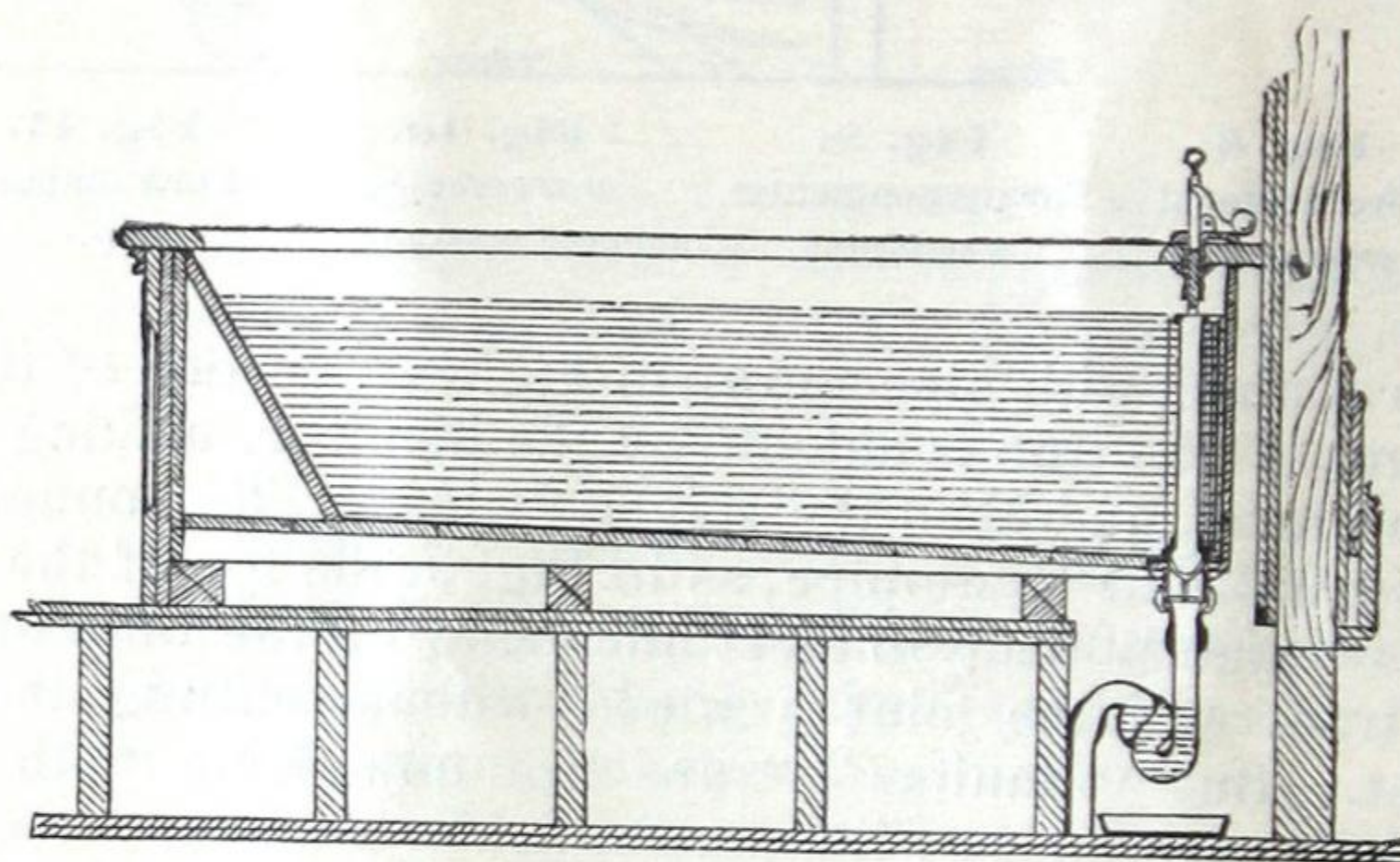


Fig. 12.

Longitudinal section of the "Sanitas" Bath-tub, showing position of trap between the joists.

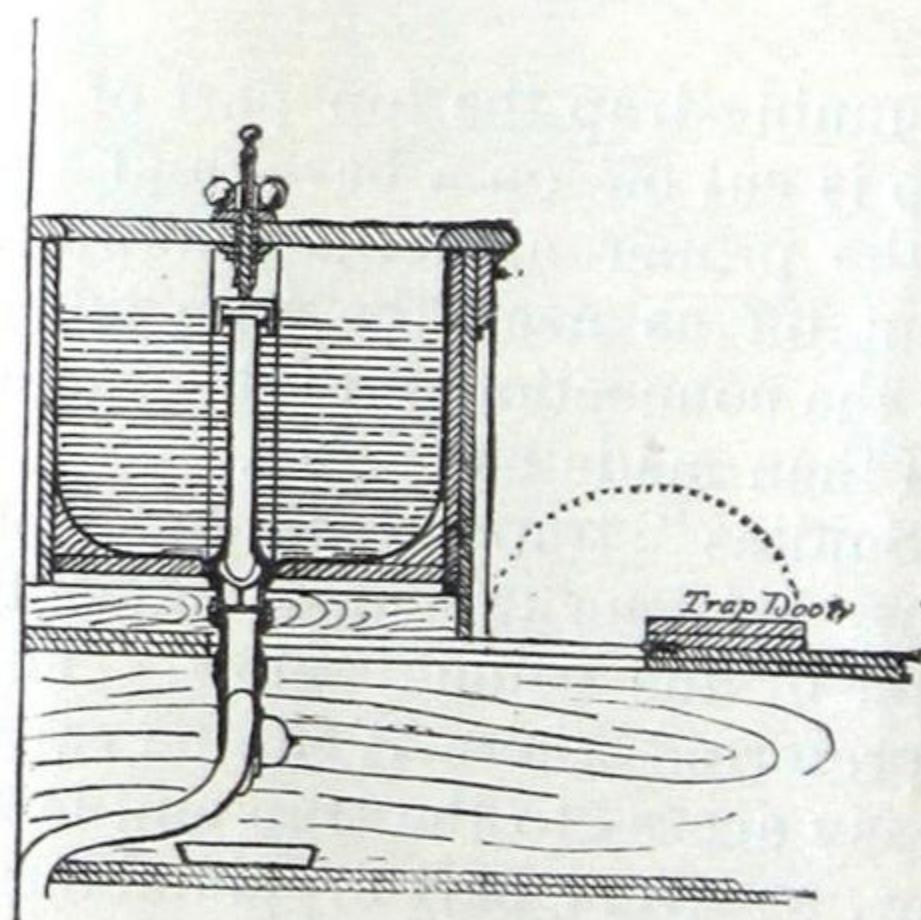


Fig. 13.

Transverse section of the "Sanitas" Bath-tub, showing trap and trap-door.

The trap-door to permit of access to the trap is shown in Fig. 13. A small lead safe or box is placed under the trap to catch the water in the clean-out cup, when the cup is removed for inspection of the interior of the trap; or a dust-pan or a saucer may be used to catch this water and the lead box be omitted. The clean-out cups of the "Sanitas" trap are made of glass and of metal. In most cases metal is to be preferred, because glass is liable to crack even when very carefully annealed. But under wash-basins glass cups are often more desirable as permitting of easy inspection at all times of the interior condition of the trap. Glass should never be used, however, above handsomely frescoed ceilings, or, in short, in any place where its possible fracture would occasion serious damage of any kind.

The discharging capacity or size of the bore of a trap should always be very nearly as great as that of the waste-pipes to which it is connected, in order that its water discharge may thoroughly scour the pipes. The fixture outlet should also always be large enough to fill the waste-pipes and trap full-bore in order to allow their proper flushing every time the fixture is used, and also to effect a rapid emptying of the fixture.

When a wash-basin is constructed with a very contracted outlet the discharge will be very slow, and the pipes will accumulate sediment. If a trap having a very small outlet, smaller even than that of the basin, be used with such a basin, the discharge will sometimes be slightly more rapid than when a properly constructed trap is used, because the waste-pipe between the basin-outlet and the contracted trap will be filled full-bore and create a strong suction which will assist in emptying the basin.

When the plumber is obliged to set a "Sanitas" trap under one of these ill-constructed basins with contracted outlet, and finds the discharge sluggish, the rapidity might be slightly increased by setting the trap low down on the floor, like an ordinary pot trap, or by contracting the waste-pipe down to its point of junction with the body of the trap until the pipe has a discharging capacity as small as that of the basin-outlet. The waste-pipe between basin and trap will then be filled full-bore as the basin empties, and the fixture will discharge as rapidly as it could be by any of the inferior kinds of traps having contracted water ways. This practice is, however, never to be recommended. The "Sanitas" trap will discharge, even under

the worst basins, as rapidly as a pot or round trap, an *S* trap, or any other trap having a good water way and the same depth of seal, as the "Sanitas" trap, and it is better to have a full-sized trap, even if the basin discharge slowly. But the only proper course is to obtain basins which have properly constructed outlets. If a fixture discharge slowly, the fault is in its outlet, and not in the trap.

Important Notice.

The attention of the trade and of the public is called to the improved manner in which the movable section of the "Sanitas" trap is secured to the body. The usual way of doing this is to construct the two parts with large threading and screw one into the other. The two are made tight by means of a flat rubber washer or gasket. This method of connecting the two parts proves objectionable for several reasons.

In the first place, it is found that the joint so formed is difficult to make water and air tight. The washer is pushed out of place and injured when the parts are screwed home, and the flat washer is difficult to compress to the point of tightness. In the second place, the threading on the trap is liable to become worn and damaged in attempting to screw on the movable section hard enough to make the joint tight; and, after much use, the large thread is apt to be destroyed. Another serious objection to this kind of joint is that the rubber washer adheres to the parts of the trap after it has been in tight contact with them for some time, and prevents them from being unscrewed, so that it is sometimes necessary to break the movable section, when it is made of glass, before it can be unscrewed.

Finally, the unequal expansion of the two parts of the trap sometimes causes the glass to break at the point where the threading of the glass enters that of the lead, when hot water is passed through the trap. The metal thread enclosing the glass, having a different coefficient of expansion from the glass thread, prevents the latter from expanding as suddenly as is required; and the consequence is often an unexpected fracture.

For these reasons it has been found desirable to find some better method of jointing; and we have adopted one which is both simple and free from all objections, and which, moreover, greatly facilitates the manufacture of the trap.

The movable section is secured to the body by means of

three brass bolts, as shown in the accompanying figures, and the large threading is avoided. Instead of a flat washer, we have substituted one which is round in section.

This diminishes the area of contact and amount of surface of material to be compressed in making the joint tight, and at the same time gives a much greater thickness of the elastic material to permit of the compression. Thus we have a washer nearly four times as thick as the flat washer, while the point of contact is less than one-fourth as great; so that the amount of pressure necessary to secure tightness is reduced to less than one-sixteenth.

The accompanying cuts show the construction employed.

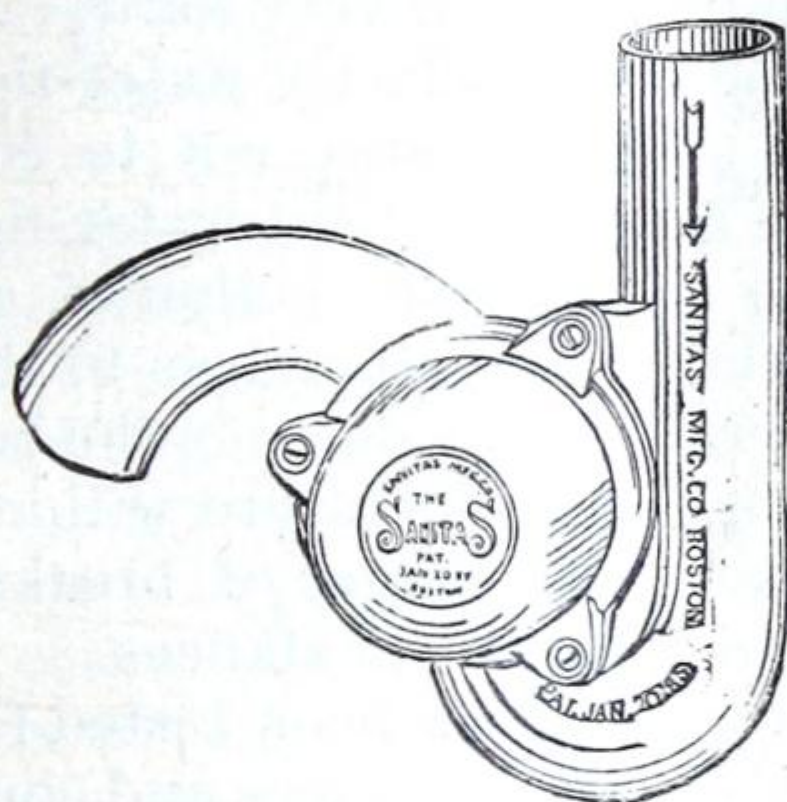


Fig. 14.

"Sanitas" Trap complete, with movable section in place.

The first figure (Fig. 14) shows the trap complete, with movable section in place.

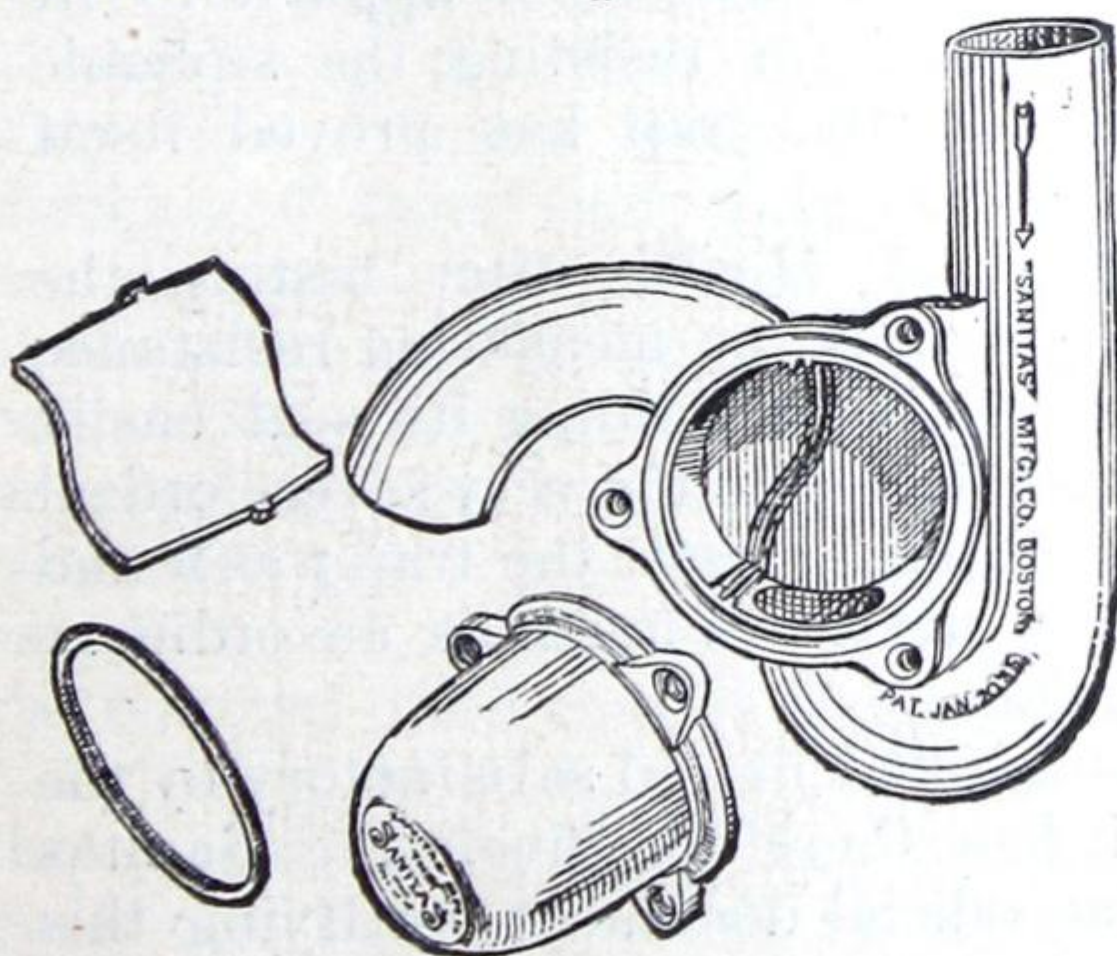


Fig. 15.

"Sanitas" Trap opened, to show the different parts detached.

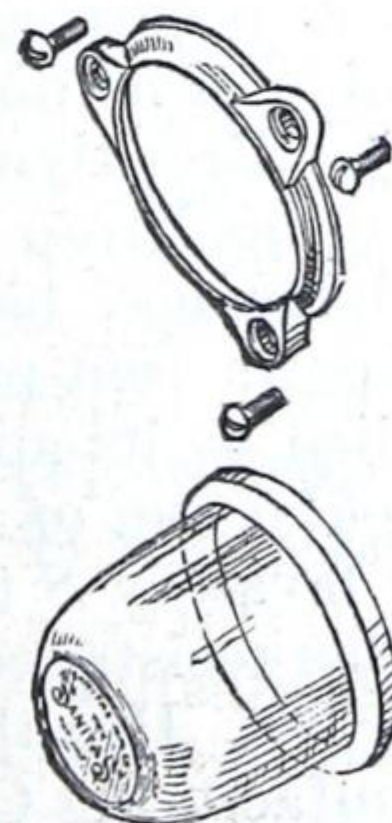


Fig. 16.

Glass section, with its metallic collar.

Fig. 15 shows the trap opened, with the various parts clearly exposed. A groove is seen in the centre of the body of the trap, in which the reflecting partition, shown in the upper left-hand corner of the drawing, is slid. This partition is held in place by the movable section, which bears on two small shoulders or projections, shown in the cut, where it is screwed down upon its seat. The round rubber washer is shown below the partition; and the movable section, with three perforated ears, corresponding to three small threaded holes in the trap-body, is represented below the trap. Three brass nuts are cast in the body of the trap, to receive the three bolts which hold the parts together. It is not necessary to screw these bolts down very hard. A few turns are sufficient to make the trap perfectly water-tight. It is obviously better for the rubber washer not to compress it more than is necessary to render the joint water-tight.

Fig. 16 represents a movable section of glass. A strong ring of polished metal secures the glass to the body, and yet allows room for lateral expansion over the rubber washer, in case of sudden change of temperature within or without the trap. This overcomes the danger of breakage through the unequal expansion of the two substances.

The "Sanitas" trap has now been tested for several years, under every variety of circumstances and conditions, and has proved to be all that is claimed for it. It is both substantially self-cleaning, and at the same time able to withstand, even unventilated, the severest tests of siphonage that can ever be brought to bear upon it in plumbing.

In all the numerous tests that have been applied to it, whether in public or in private, for resisting the siphonic action occurring in plumbing, the trap has proved itself capable of holding its seal intact.

The Brooklyn City Board of Health, after testing the "Sanitas" trap on their apparatus for measuring resistance to siphonage, has found it capable of holding its seal easily without a vent-pipe, when subjected to the very severe ordeal applied by its apparatus. After the test, the trap was found to hold a seal of $1\frac{1}{4}$ inches, or nearly as much as an ordinary cast lavatory S trap when full.

This resistance was found sufficient and satisfactory by the Board of Health, and it has therefore given the Sanitas Manufacturing Company an official document certifying this fact.

In the city of Sacramento, California, the plumbing laws have, until this year, required all traps to be vented by a special vent-pipe. The laws of this city have, however, this year been altered enabling the "Sanitas" trap to be used without a vent.

In regard to the self-scouring properties of the trap, it has been tested under the most trying conditions, and found fully up to its claims. It is found to be especially adapted for use under kitchen and pantry sinks. In these fixtures grease and all kinds of coarse and sticky matters are constantly passed through the trap. The "Sanitas" trap is so small that the hot grease does not cool and congeal in it as it does in traps holding large bodies of water. It flows through and out of the trap in a liquid state, into the proper grease receptacles beyond. The passage-way through the trap being, moreover, substantially the same in area throughout as the waste-pipe it serves, the water keeps the passage-way open, and the trap never becomes clogged.

It has been asked if matters would not sometimes collect on the reflecting partition. We find, by experience, that it never does; and this is explained by the fact that the water flows *around* the end of the partition, and not *against* it. The sides and back of the partition fit closely against the walls of the trap, and no chance is allowed for the accumulation of sediment in any place. Hairs, lint, chips, and all other kinds of dirt liable to pass through the fixture are easily carried through the trap. When it is properly set under fixtures having properly constructed large outlets, even full-length matches, iron nails, bits of coal the size of a robin's egg, are whisked through this trap as easily as if they were common house-flies, under the powerful stream discharged from such fixtures. The "Sanitas" lavatories are all constructed on this principle. Matches may sometimes get caught in the inlet or outlet bend of the waste-pipe connecting with the trap, as might happen in any waste-pipe or trap-bend, but not in the body of the trap itself. In any case, the position of the movable section or cap permits of easy removal of such obstruction; whereas, with other traps, the removal often cannot be accomplished.

By using the "Sanitas" system of plumbing appliances throughout, a building may be safely plumbed at a much lower cost than is possible by using the ordinary methods.

The "Sanitas" trap is now made both "rights" and

"lefts" according as the outlet turns to the right or left respectively, so that the necessity of bending the waste-pipe under the trap is avoided.

In ordering the trap it should be stated whether rights or lefts are desired. If no specific directions are given, half of each kind will be sent.

The full S form is now also made.

The movable section is now made of glass, lead, or copper; and the trap of lead or brass.

II. THE "SANITAS" BASIN.

The opening in the marble slab for the "Sanitas" basins is round or elliptical, the same as for ordinary round or elliptical basins. The opening is cut about half an inch smaller in diameter than the inside diameter of the basin at the top, so as to give an overhang of about a quarter of an inch all round as usual.

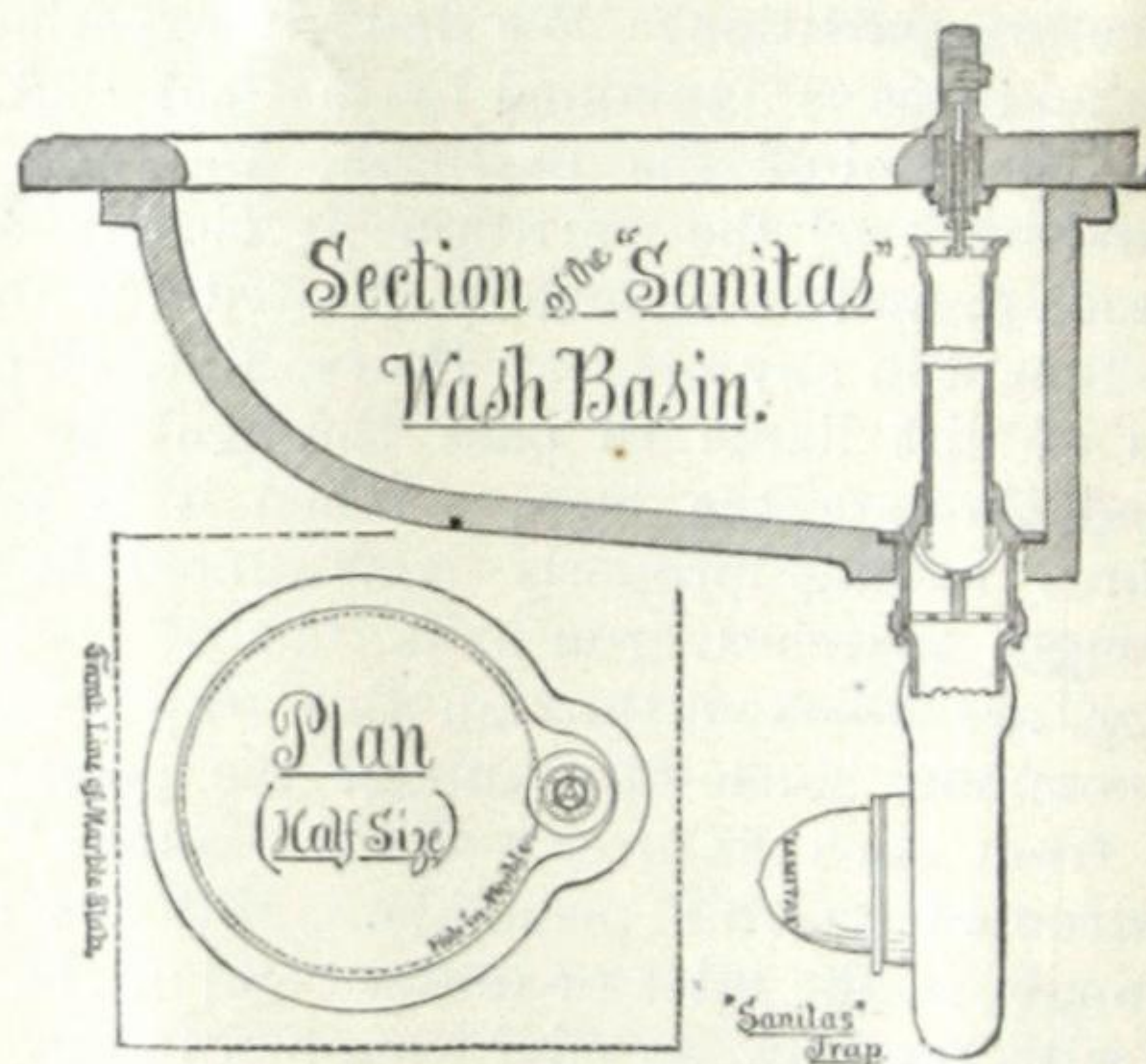


Fig. 17.
"Sanitas" Basin.

A small hole one inch in diameter must next be drilled through the slab, as shown in the plan on the annexed cut (Fig. 17). This hole takes the place of the chain-post hole in slabs for ordinary plug-and-chain outlet. The centre of the hole should be directly over the centre of the outlet of the basin. The inner full line in this figure indicates the outline

of the "Sanitas" round basin under the marble slab. The dotted line the corresponding opening in the slab. The figure also shows the vertical section of the "Sanitas" basin-fitting and basin. When the plumber has set the basin and marble properly, as directed above, the brass fittings must be put in the hole in the marble and secured in place by its checknut underneath the slab. The stand-pipe should then be inserted in the ground seat of its outlet, and the length of the lifting-rod adjusted. A small play, say nearly an eighth of an inch, is to be left between the ears of the standpipe and the lifting-hooks when the standpipe is on its seat, to ensure its setting firmly in its place and bearing its entire weight on its ground seat. The lifting device is of the utmost simplicity and strength, and is very ornamental in appearance.

III. THE "SANITAS" BATH-TUB.

with "Sanitas" outlet-fitting is set on the same principle with the "Sanitas" basin, care being taken to have the centre of the hole in the finished wooden-slab covering the tub and corresponding with the marble wash-basin-slab directly over the centre of the outlet. Fig. 18 shows the plan of the "Sanitas" tub.

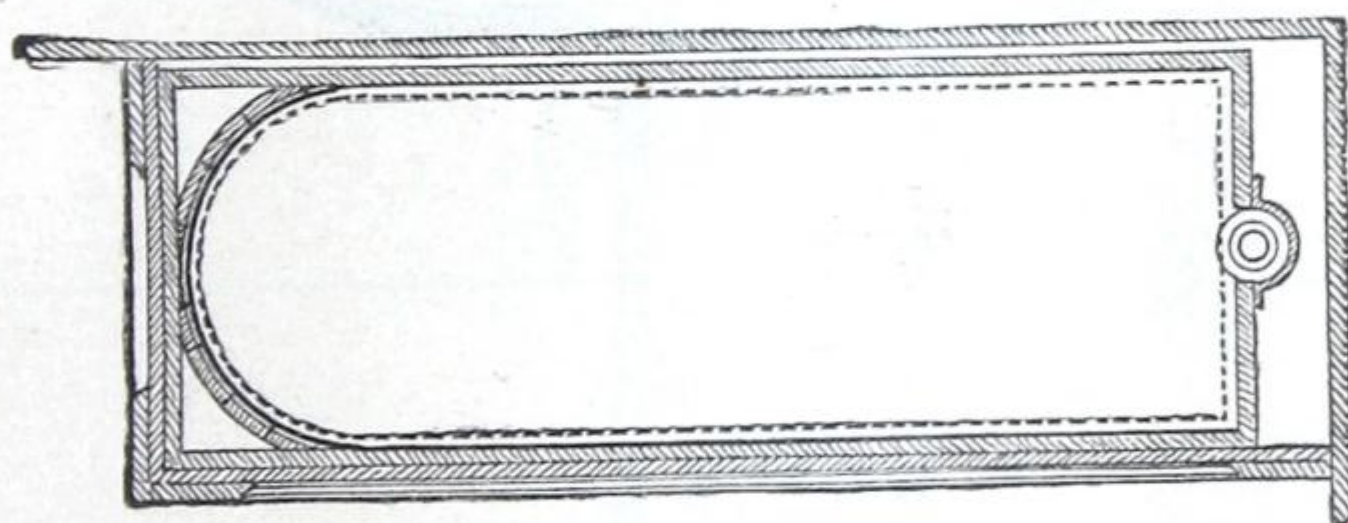


Fig. 18.

Plan of the "Sanitas" Bath-tub.

For further information see the description of the "Sanitas" bath-tub, and the directions for setting the "Sanitas" trap.

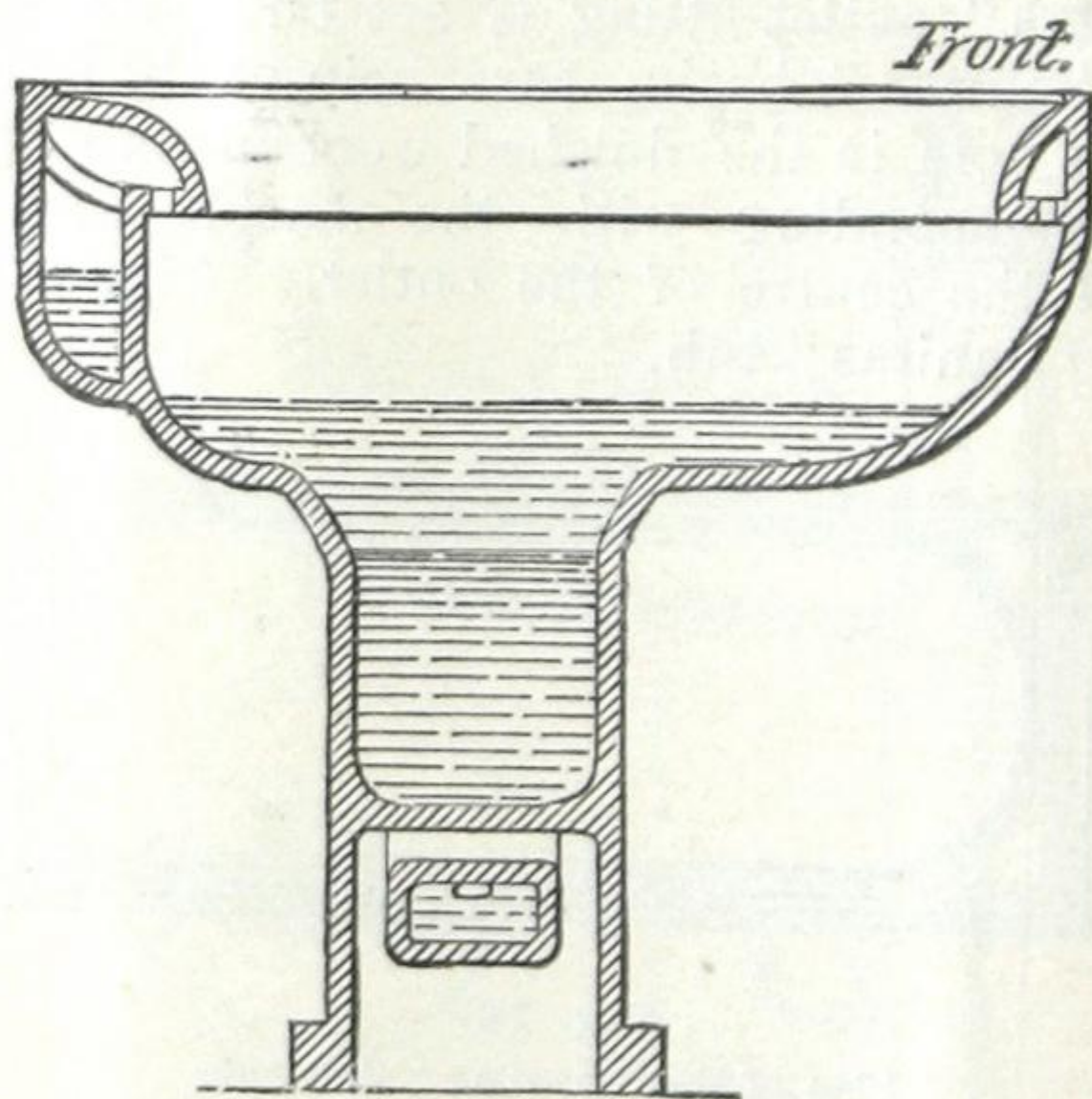
IV. THE "SANITAS" PANTRY-SINK.

with "Sanitas" outlet-fitting is set in the same manner as the "Sanitas" wash-basin and bath-tub.

V.

THE "SANITAS" WATER-CLOSET.

Figs. 19, 20, 21, and 22 represent in section the "SANITAS" water-closet. The form is absolutely simple. The bowl and trap are one and the same thing, inasmuch as each forms the other. The flushing is accomplished without machinery of any kind in the closet, but by the pressure of the water only, and the quantity of water required is reduced

**Fig. 19.**

Longitudinal section of the "Sanitas" Water-closet.

to a minimum. The supply-pipe (see Fig. 20) enters the bowl below the normal level of the standing water therein, and stands permanently full of water up to the cistern-valve. This water is held in the supply-pipe by atmospheric pressure, the pipe being closed at the top by the cistern-valve and at the bottom by the water in the closet-bowl. The lower

end of the supply-pipe is perforated at two places independent of each other first, at a point intermediate between the overflow of the trap and its dip; and, second, at the bottom of the trap. The first supplies water to the flushing-rim, and the second furnishes a jet which lifts part of the water out of the trap and bowl by its propelling power. Since both jets enter below the level of a large body of standing water in the bowl, their noise is deadened, and, as the supply-pipe stands always full, they act instantly, and the flushing of the closet is very rapid. The operation is as follows: Upon opening the cistern-valve the water in the supply-pipe is instantly set in motion by the pressure of the

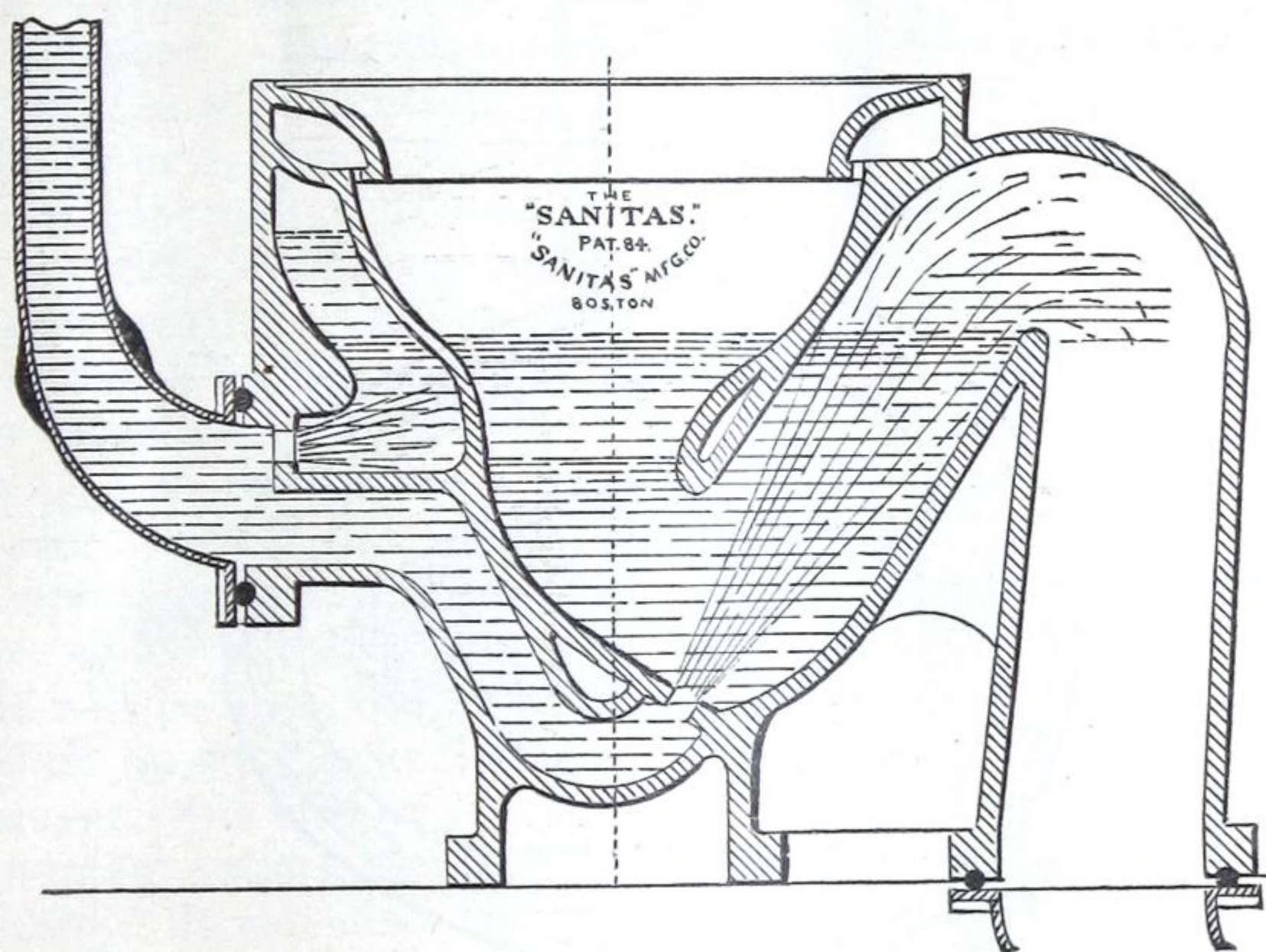


Fig. 20.

Transverse section of "Sanitas" Water-closet.

atmosphere on the surface of the cistern and escapes through the two orifices in powerful jets. The lower jet removes part of the water from the trap, and causes the water and waste matters in the water-closet to sink into the neck of the bowl. Meanwhile the upper jet fills the passage leading to the flushing-rim, and, descending into the neck of the bowl, falls upon and drives out the waste matters collected in the neck without noise or waste of water. The action is almost instantaneous. The cistern-valve being again closed, movement in the supply-pipe immediately ceases, and the water

in the flushing-rim and passages leading thereto falls back into the closet and restores the normal level of the standing water in the bowl and trap.

The form of the closet-bowl is such that the surface of the standing water therein is very large. It has the shape best calculated to receive and deodorize the waste matters falling into it. The water is deepest at the back of the closet, and very deep at the point where the wastes strike. All parts of the trap and bowl are easily accessible from the bowl itself, and there is no superfluous space and no surface which is not thoroughly scoured by the flushing-streams in the normal usage of the closet. There is no invisible trap below

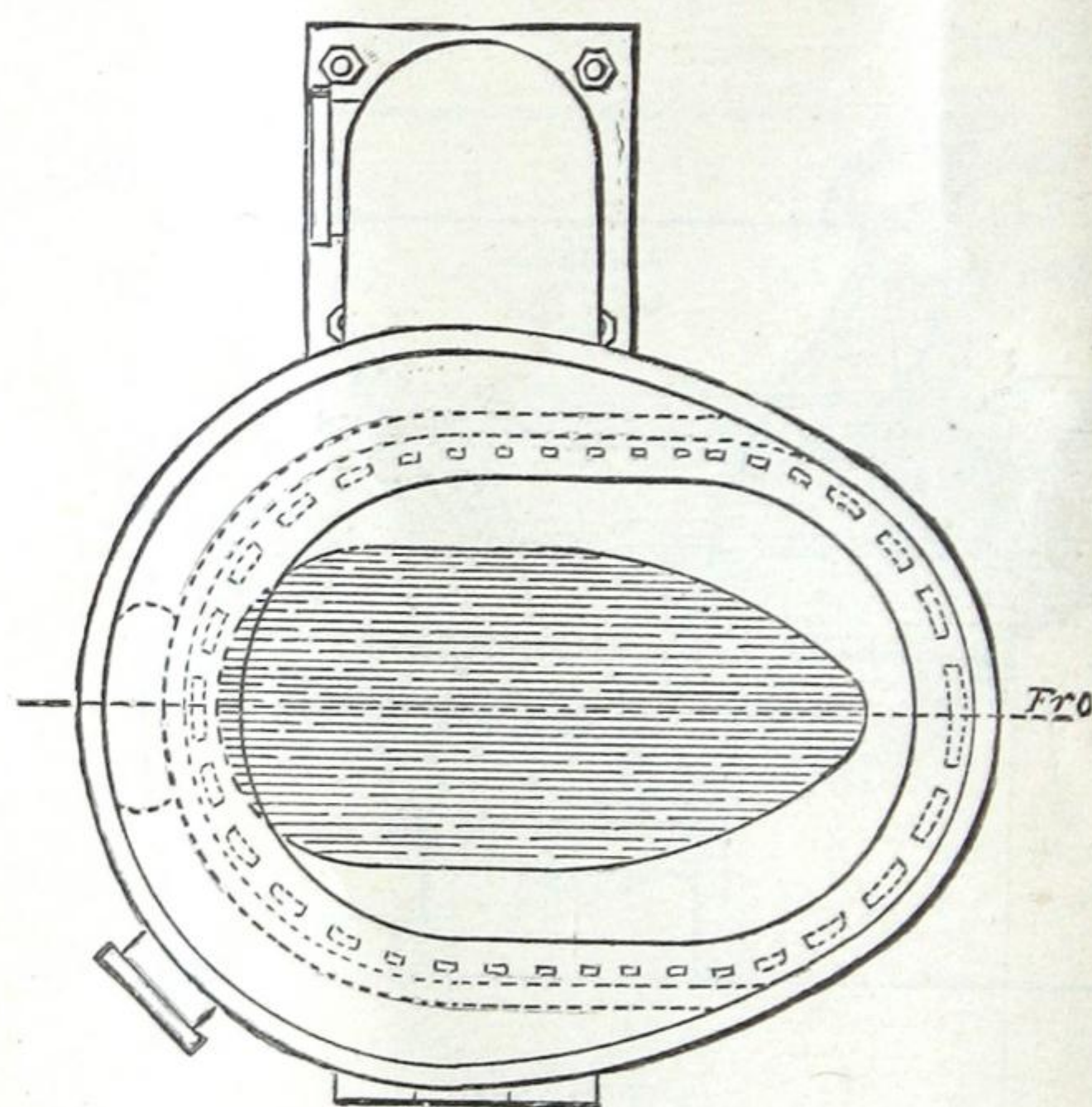


Fig. 21.

Plan of the "Sanitas" Water-closet.

the bowl, and when the closet appears to be flushed clean it is so.

This closet can be easily flushed in one second by less than a gallon and a half of water. There are several advantages in having the supply-pipe of a closet enter below the level of the water in the bowl and closed above with a valve without air-pipe, so that it shall remain always full of water. In the first place, its action is instantaneous and noiseless. The water does not have to fall from the cistern to the closet

before it begins to work. In the second place, the friction of air in the pipe is avoided and the water exerts at once its full power in discharging the waste matters. Hence a very considerable economy of water is the result. As already stated, the upper orifice is placed below the level of the standing water in the closet-bowl, but above the dip of the trap. This position of the upper jet gives us another very important advantage. Should the water in the closet be lowered by evaporation or siphonage below the upper orifice, air will at once enter the supply-pipe through this orifice, and water will then descend from the pipe into the closet through the lower orifice, until the upper orifice is again covered, and the seal of the trap is thus automatically maintained by the water in the supply-pipe. This pipe may be made capacious enough to restore the seal as often as it is likely ever to require it. A pipe $1\frac{1}{2}$ or 2 inches in diameter and six feet long will contain water enough to secure the seal against destruction by evaporation for a great many months, even in the driest and hottest weather. Hence the closet may be left to itself in city houses for the entire summer's vacation, without fear on this score, and the danger of a loss of seal through siphonage is also reduced to a minimum. The seal of this closet is over three inches deep. Such a seal is difficult to break by siphonage even without the use of our automatic supply-pipe, which is called the "*Sanitas*" water-closet supply-pipe.

It will be observed that the closet is provided with a ventilation opening near the crown of the trap. This ventilation, however, will seldom if ever be required to prevent external siphoning action, and the vent-opening may be closed up if desired. It will also be observed that the closet is provided with a cistern overflow connection which may serve also when desired for a bowl ventilation-pipe connection by continuing the overflow-pipe above the cistern, and continuing it with a suitable ventilating-flue. In this case the overflow-pipe must dip into the water of the cistern, and descend nearly to its bottom.

An important advantage in having the trap and bowl of a water-closet combined in this simple form is that they may be easily emptied in winter to prevent freezing. This is sometimes desirable in the case of summer residences which are closed up in winter. The water may be easily sponged or pumped out of this closet without taking it apart, whereas closets having inaccessible traps under the bowl or floor can-

not be emptied or cleansed without taking the apparatus to pieces, and in the case of many forms of wash-out closets, where the trap under the bowl is in a single piece of earthenware with the bowl, the emptying or cleansing of the trap is either very difficult or altogether impossible.

The upper flushing is accomplished without spattering, because the pressure of the upper jet is relieved at the upper orifice, and the water quietly overflows the rim of the bowl. Fig. 22 gives a front view of the "Sanitas" closet.

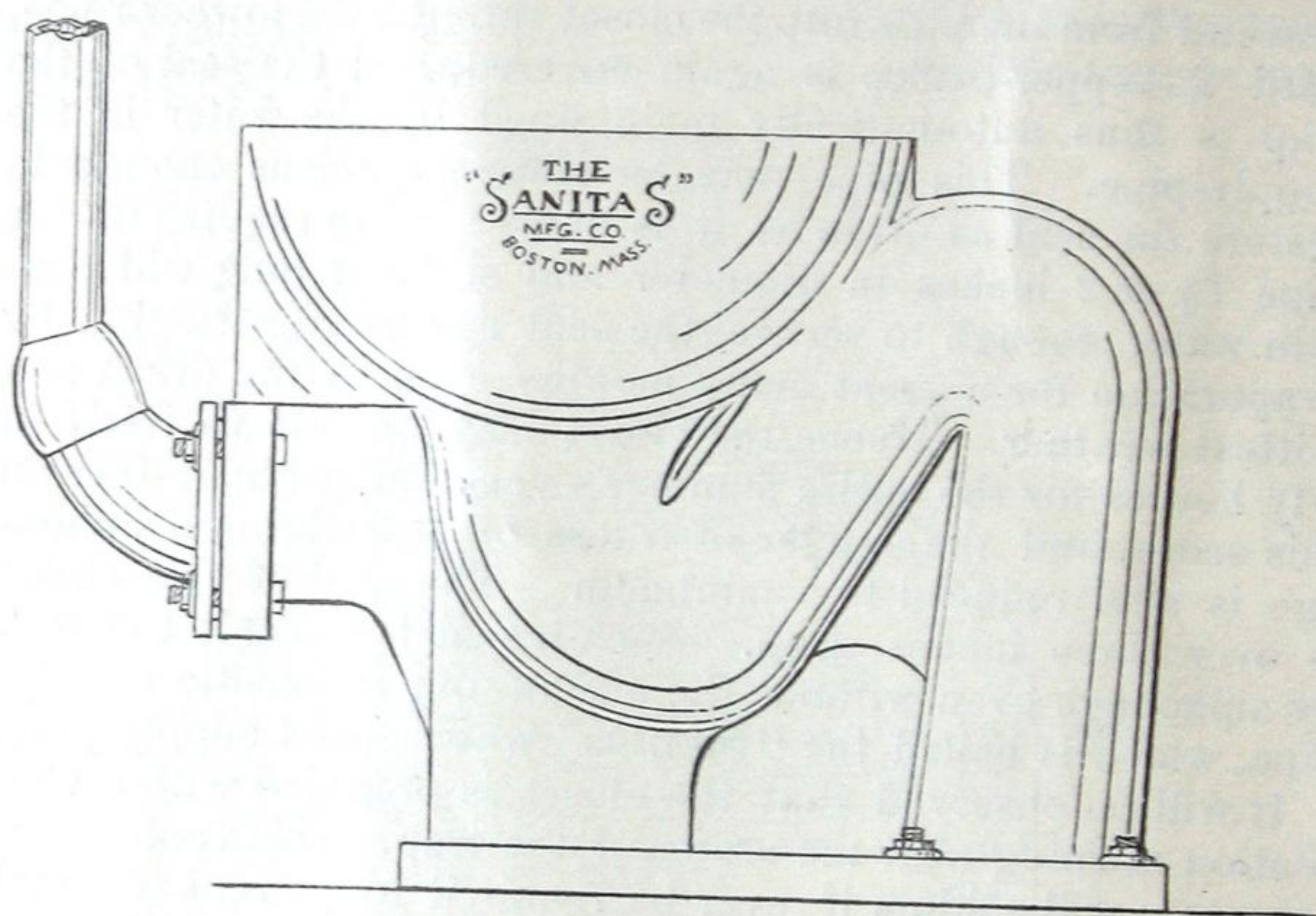


Fig. 22.

Front view of "Sanitas" Water-closet.

THE "SANITAS" WATER-CLOSET.

DIRECTIONS FOR SETTING.

The "Sanitas" water-closet is very easy to set. The accompanying illustration shows its appearance when properly set, with cistern and fittings complete.

CISTERN DIRECTLY OVER CLOSET.

It is important that the cistern be placed directly over the water-closet in such a manner that the supply-pipe from cistern to closet shall be vertical and as direct as possible. Every additional bend increases the friction of the flowing water and impairs the working of the closet, especially where the cistern has to be set low.

HEIGHT OF CISTERN.

The bottom of the cistern should not be less than 5 feet 6 inches, nor more than 6 feet 6 inches, above the top of the water-closet bowl.

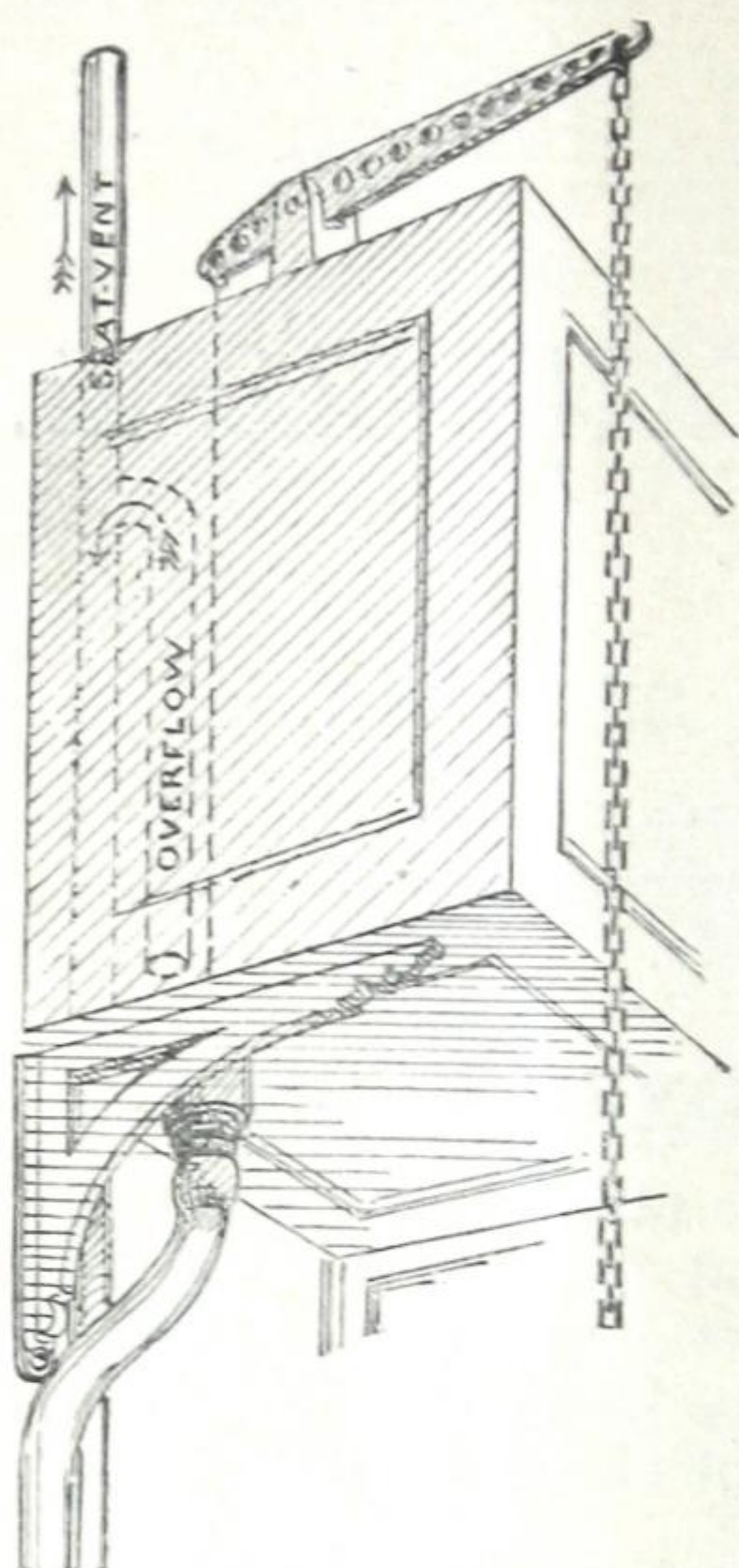
The supply pipe from cistern to water-closet should be 1½ inches inside diameter.

CISTERN.

Any wooden cistern holding eight or more gallons of water up to the overflow will serve for the "Sanitas" closet and valve. The cistern should be of wood, of the usual make, lined with sheet-metal, as customary, preferably with 16-oz. tinned copper. The large valve-collar to be soldered in the bottom of the cistern, and the valve to be screwed afterwards into the collar.

If an iron cistern be used, a hole just large enough to take the valve should be bored in its bottom before setting, and preferably before painting or enamelling. The valve must

The "Sanitas" Manufacturing Company,



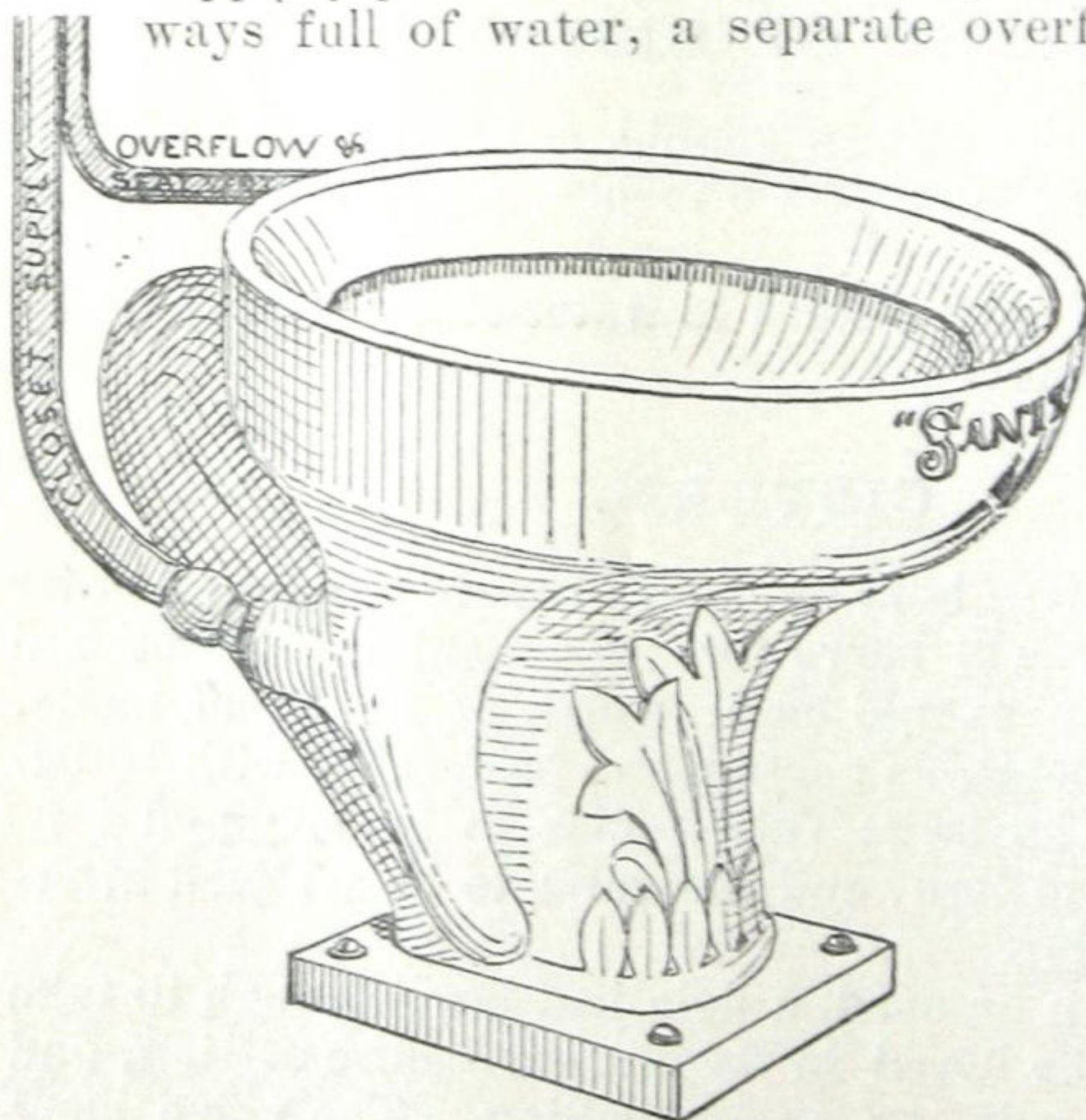
then be secured by the large collar screwed up on the outside of the valve body to the bottom of the cistern, using red or white lead between the flange of the valve and the bottom of the cistern to make the joint water-tight.

THE CISTERN LEVER.

A lever will be furnished with each closet. It should be set in the manner shown in the perspective drawing, care being taken that it shall have *full play room* and be set so as to pull up the valve-stem its full distance, and to play perpendicularly. Stout brass wire should be used between lever and valve, as small or copper wire will stretch.

CISTERN OVERFLOW.

Inasmuch as the water-closet supply-pipe must be kept air-tight, so as to stand always full of water, a separate overflow-pipe must be



The "Sanitas" Water-Closet.

provided for the cistern. This pipe should either connect with a system of fixture or safe overflow-pipes, made for the various fixtures or their safes in the house, as is done in some cases, or else simply connect with the closet flushing rim as shown in the perspective, a coupling being provided on the

closet for the purpose. This pipe may also serve as a seat-vent, if desired, by connecting it with a special ventilation-flue above the cistern, as explained in the perspective. This vent-pipe will serve also to ventilate the entire room, and is an excellent method of ventilating a toilet-room.

SOIL-PIPE CONNECTION.

Metal shoes are furnished with each closet, and are cast to exactly fit the porcelain base. The shoe has a $4\frac{1}{2}$ -inch hole in it, corresponding with the $3\frac{1}{2}$ -inch outlet hole in the water-closet. The lead pipe which is to connect the closet with the iron soil-pipe is to be first flanged over the $4\frac{1}{2}$ -inch hole in the shoe at the floor, and the closet is then set in place on the shoe and screwed down by means of four brass machine screws, which are furnished with each closet. The holes in the earthen-ware base correspond with the threaded holes tapped in the shoe, but are made a little larger than the screws to allow of a certain amount of play for adjustment. Brass and leather washers are used to cover these holes and protect the earthen-ware from injury. A red lead and putty mixture is used between the earthen-ware base and the iron shoe. When this hardens, the earthen-ware and metal become, as it were, one piece, and the closet is thus independent of shrinkage or settling of the floors. All movement takes place in the flexible lead pipe below, which should always be used between the closet and the rigid iron soil-pipe. The joint thus becomes a permanently sewer gas-tight metallic joint, which cannot be injured by jarring, settlement, or shrinkage in the building. This kind of connection is now acknowledged by sanitary engineers and plumbers as the only perfectly safe one for water-closets known. The trap-vent pipe, if used, should be connected with the lead-waste pipe, instead of with the earthenware, as this avoids all danger of cracking the earthenware, or of clogging, and is easier and tighter. But the "Sanitas" closet does not require trap-venting.

CISTERN VALVE AND PIPE.

The valve to be used with the "Sanitas" water-closet is the "Sanitas" valve, which is especially designed for it, and is furnished with each closet sold.

This valve is very simple, and has now been tested for over

The "Sanitas" Manufacturing Company.

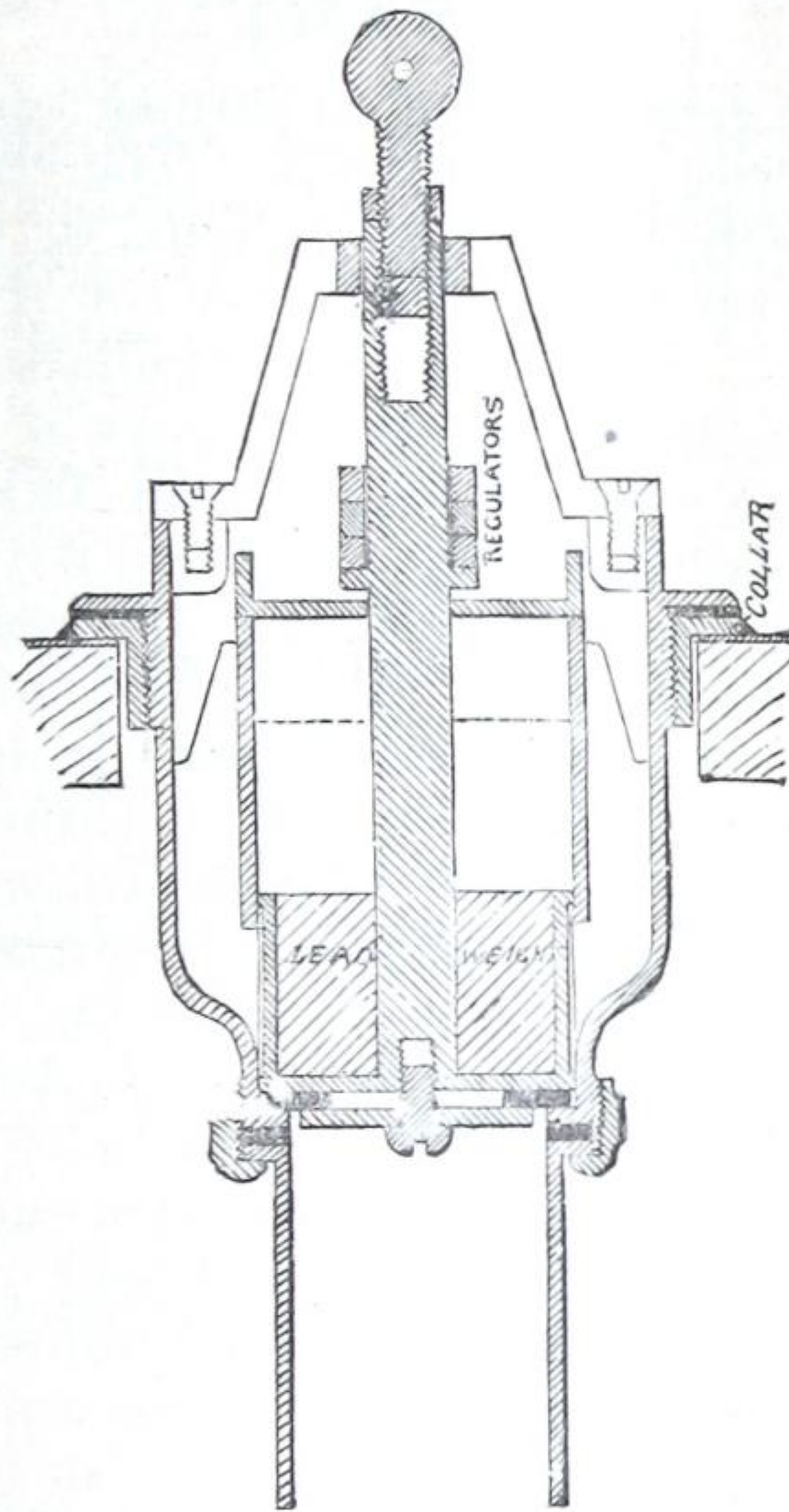
four years, and in all kinds of water. Its construction is such that it can never get out of order. No air-pipe is used with the valve, and the water-closet supply-pipe should always stand full of water except at times when the house is closed up, and left unoccupied during winter. At such times it may be emptied, if desired, like the cistern and cistern supply-pipe, to avoid freezing.

The valve should be set in the corner of the cistern nearest over the water-closet, so as to make the down-pipe as short as possible. The closet supply-pipe is then coupled in the usual manner on to the bottom of the valve.

The supply-pipe from the cistern to the water-closet is intended to stand permanently full of water, which is sustained in the pipe by atmospheric pressure, on the principle which sustains water in a bottle filled with water and inverted over a basin full of water. Therefore particular care should be taken by the plumber to make the connections of this pipe absolutely air as well as water-tight. The smallest leak hole, especially at the upper connection, will let air into the pipe when water will not show the leak by escaping. This will allow the water to descend out of the pipe, and the operation of the closet will be injured. A want of tightness may be detected by a faint hissing noise of air rushing into the top of the pipe immediately after flushing. To hear this hissing noise it will often be necessary to hold up the ball-cock and shut off the noise of filling the cistern. Another sign by which it may be known, if the supply-pipe contains air, is the bubbling noise in the water-closet bowl occasioned by the air escaping through the water in the closet, when the flushing commences. If the pipe stands full of water, as it should, the water in the closet bowl will descend immediately and silently without bubbling the instant the valve is opened.

"Sanitas" Manufacturing Company.

SANITAS CISTERN VALVE.



DIRECTIONS FOR SETTING.

Cut a hole in the bottom of the cistern large enough to take the valve. Unscrew the large threaded collar from the body of the valve and insert it in the hole so that its flange shall project over the copper cistern lining round the hole, and sweat it in. Now screw the valve into the collar and make tight with white lead or with a leather washer, and the work is completed. The collar has a left-hand threading, so that when the coupling-nut which secures the water-closet supply-pipe to the valve is screwed up, it shall not unscrew the valve from its large collar, but rather make it all the tighter.

REGULATING THE "SANITAS" VALVE.

The "Sanitas" valve is automatic in its action. A simple jerk of the valve-chain, letting go immediately, is all that is necessary to operate it. It closes of itself noiselessly after the required amount of water for properly flushing the closet has passed.

The valve may be regulated to furnish two, three, or four gallons, as desired, at each flush. The "Sanitas" closet may be easily flushed with two gallons, or even less. It is customary, however, to set the valve for three gallons, for extra precaution. The means of regulating the valve consists in simply fixing the proper number of small buffers or washers, furnished with the valve, on the valve-stem between the top of the valve-body and the guide for the stem. The number of these washers regulates the amount the valve-plunger can be raised. The greater the number of washers the less the plunger can be raised, and hence the quicker it will fall to its seat again. Therefore increasing the number of washers diminishes the number of gallons discharged, and *vice versa*. Each valve can be thus easily regulated to furnish the desired number of gallons for the particular closet it serves. The valves will be regulated by the manufacturers to run about three gallons. But of course the height of the cistern and other conditions will somewhat modify the action at each place, requiring a possible readjustment of the washers.

If, on trying the closet after it has been set up, it is found that the water runs longer than is necessary to properly flush the closet, another "regulator" or common washer should be put on the valve-stem; for by so doing the valve-piston is prevented from rising so high, and consequently closes quicker. But care must be taken not to put on *too many* "regulators," as this would prevent the piston from rising high enough to fully open the water-ports, and the closet would not be properly flushed. The piston should rise at least $1\frac{1}{8}$ inches to open the portes. If the valve still closes too slowly, rub the piston VERY SLIGHTLY with *fine emery paper*, equally all round the outside, so as to very slightly diminish its diameter. It will then fall to its seat quicker. The slightest rubbing will usually suffice. Too much will cause it to close too quickly, and ruin the valve by making it "hammer." Therefore this rubbing should only be done after trying the "regulators" thoroughly, and as a last resort. It will seldom, if ever, be necessary.

PRICE LIST OF "SANITAS" APPLIANCES.

TRAP.

"Sanitas" Antisiphon, Self-scouring Trap, for use under wash-basins and laundry-tubs, kitchen and pantry sinks, or any fixture with outlet $1\frac{1}{2}$ or 2 inches diameter at most contracted point, as at the strainer:—

Lead, with glass movable section . . .	\$2 50
" " lead " " . . .	2 75
" " copper " " . . .	3 00
Brass, dipped, with glass movable section . . .	7 00
" " " brass " " . . .	8 00
" polished " glass " " . . .	10 00
" " " brass " " . . .	12 00
" nickel plated brass " " . . .	13 00

BASIN.

"Sanitas" Round Basin, 16 in. diameter, outside measurement, with "Sanitas" waste and overflow:—

Nickel Plated	\$12 00 10.00
Silver Plated	14 50 12.50
<i>14 inch Basin N. P. G. S. P. 11.50</i>	
"Sanitas" Oval Basin, 15 X 19, outside measurement, with "Sanitas" waste and overflow:—	

Nickel Plated	\$13 00 12.00
Silver Plated	15 50 13.50

WATER-CLOSET.

With "Sanitas"-Valve	\$40 00
Without Valve	35 00

*Sanitas Water Closet complete with
Tank etc \$46.50*

PRICE LIST OF "SANITAS" COPPER BATH-TUBS.

Weight of copper in ounces per foot	10	12	14	16	18	20
6 ft. long or 5 ft. 6 in. long, Nickel Plated	\$24 00	\$26 00	\$28 00	\$30 00	\$32 00	\$34 00
6 ft. long or 5 ft. 6 in. long, Silver Plated	27 00	29 00	31 00	33 00	35 00	37 00
French tub, 4 ft. 6 in. long, Nickel Plated	26 00	28 00	30 00	32 00	34 00	36 00
French tub, 4 ft. 6 in. long, Silver Plated	29 00	31 00	33 00	35 00	37 00	39 00
Enamelled Iron Bath-Tub, 5 feet 6 inches long	.	.	.	.	.	\$70 00
Enamelled Iron Sitz Bath	.	.	.	.	.	45 00

PRICE LIST OF "SANITAS" COPPER PANTRY-SINKS.

Size	12 X 18	12 X 20	14 X 16	14 X 20	14 X 24	16 X 24	16 X 30	18 X 30
Nickel Plated	\$11 50	\$12 00	\$11 50	\$13 00	\$14 00	\$15 00	\$17 00	\$18 00
Silver Plated	14 00	14 50	14 00	15 57	16 50	17 50	19 50	20 50

PRICE LIST OF "SANITAS" PIPE.

(Same price as ordinary extra heavy bell-and-spigot pipe.)

DESCRIPTION OF PIPE.	Price per piece.	
	2 in.	4 in.
Straight pipe, 6 in. long.....	\$0 25	\$0 50
“ 7 “	25	50
“ 8 “	30	60
“ 9 “	30	60
“ 10 “	35	75
“ 11 “	35	75
“ 12 “	35	75
“ 2 ft. long	70	
“ 3 “	1 05	2 25
“ 5 “	1 75	3 75
Reverser (to change direction of flanges)....	30	60
Hub-piece	35	75
Spigot-piece	35	75
$\frac{1}{4}$, $\frac{1}{6}$, $\frac{1}{8}$, $\frac{1}{16}$, $\frac{1}{32}$, and $\frac{1}{64}$ bend, each.....	50	1 10
Y's, 2 \times 2	80	
Y's, 2 \times 4	1 60	
Y's, 4 \times 4		1 60
T's, 4 \times 4		1 20
Running-trap, 4 \times 4.....		3 50
Iron rings, 4 in., each		25
Iron half-rings, 4 in., each.....		15
Iron caps, 4 in., each.....		40
Iron rings, 2 in., each.....	20	
Iron half-rings, 2 in., each.....	12	
Iron caps, 2 in., each	30	
Lead washers, 4 in.....		08
Lead washers, 2 in.....	04	
Bolts, each	05	
“ Sanitas ” wrenches, each		4 00

TESTIMONIALS.

THE following are a few of the many testimonials from authorities in Sanitary Engineering and Plumbing:—

WILLIAM E. HOYT, C.E.,

Chief Engineer Rochester & Pittsburg Railroad Company, writes: "It gives me pleasure to say that these (the 'Sanitas' goods) seem to me superior to any other article of the kind which I have been able to find, and I am tolerably familiar with most of the best modern appliances and fixtures used in well-designed systems of house drainage. You have certainly overcome some very serious difficulties which sanitary engineers have had to encounter in trying to keep our houses clean and wholesome."

COL. GEORGE E. WARING, Jr.,

speaks highly of the "Sanitas" system, in his article on Sanitary Plumbing in the "Century Magazine" for November and December of 1884, and says of the trap, that he "finds it effective in withstanding siphonage, and substantially self-scouring," and adds, "It seems to me the best trap I have ever seen."

WILLIAM PAUL GERHARD,

the well-known expert and popular writer and authority on Sanitary Engineering, writes of the "Sanitas" bath-tub in his article on Domestic Sanitary Appliances in "Good Housekeeping" for 1884-85: "Here the stand-pipe is placed in a recess, but so as to be perfectly accessible for cleaning. The outlet of the 'Sanitas' tub is made unusually large to effect a quick discharge, thus securing a thorough scouring to the trap and waste-pipe; the tub acting as a flush-tank. It is by far the best sanitary tub of which I have knowledge, and answers all requirements of a perfect plumbing fixture."

Speaking of basins, he says in the same publication: "Much the best form of basin, of which I have knowledge, is the stand-pipe outlet basin, or 'Sanitas' wash-basin, manufactured in Boston by the 'Sanitas' Manufacturing Company; and since this fixture will, in my judgment, soon supersede all former devices, and since it has so many superior features of simplicity, convenience, and sanitary construction, I shall describe it fully." Then follows a detailed description of the fixture, saying among other things, "It is of the utmost sim-

plicity, and of great convenience in use, while its appearance is, if anything, even more pleasing than that of the usual form of bowl."

The description concludes as follows: "To sum up, the 'Sanitas' wash-basin offers the following advantages: It is a quick-emptying, self-cleansing, back-outlet basin, without concealed overflow. Through it waste-water is completely and rapidly removed (a quick discharge, as from a small flush-tank effected), filling the pipes full bore; and the trap and waste-pipe are thoroughly scoured. It provides for an overflow, without requiring a special pipe or valve for this purpose; it has no brass-work in the bottom of the bowl in the way of hands when washing, and no chain and plug. The pernicious habit of washing in running water is rendered unnecessary, and hence an important aid established towards the prevention of water waste. The whole of the fixture, and all its parts and appendages, are visible and readily accessible; its outlet is controlled by a very simple single movement, which mechanism requires only very little strength to operate. It is easily attached to the slab, readily fitted up by the plumber, and has no concealed parts liable to cloy or become obstructed. In short, it is a durable, simple, and well-constructed *sanitary* plumbing fixture.

Of the Pantry-sink he says: "A very convenient arrangement is what is known as the 'Sanitas' Pantry-sink, in which the stand-pipe is provided with a simple cam-movement to lift it from its seat, if it is desired to empty the sink. The volume of water discharged from such a sink through a very large outlet, and concentrated beyond this in a trap and waste-pipe of small calibre, causes a thorough flushing of both, and prevents the grease from dish-washing from adhering to the sides of the pipe."

CHARLES C. HELLMERS, JR.,

architect, of St. Louis, writing of the "Sanitas" Trap, says: "I think it the best article in the market, and as such will continue to do all in my power to introduce it among my clients."

MR. GUY TILDEN,

architect, has signified his approval of the "Sanitas" goods by printing them in his Specifications for Plumbing.

MESSRS. OBY & LOVE,

plumbers, at Alliance, Ohio, write to us as follows: "We think the 'Sanitas' Basin by far the *best* basin in the market; and it is the *only* basin, so far as we know, that has an outlet anywhere near large enough. We have always thought it the greatest nonsense to put a 1½-inch waste from a basin which has an outlet not more than one-third of this capacity. Your basin is just what we have been looking for in this respect."

MR. J. F. SCANNELL,

plumber, of Boston, writes: "I have great pleasure in recommending your 'Sanitas' Soil-pipe, on account of its uniform thickness, and also

in the easy manner in which connections are made, which are both gas and water tight.

"In regard to your 'Sanitas' Basin, I think it is far ahead of anything yet introduced on the market, on account of its simplicity and effectiveness in the discharge of the water. Your 'Sanitas' traps I believe to be the simplest and cleanest in the market. In regard to 'Sanitas' wastes, for bath and pantry sink, I think they are superior to anything I have ever used, and shall always recommend them, and use them every time I get an opportunity, in preference to all others."

MR. THOMAS J. TUTE,

plumber, of Boston, writes: "Having used your several waste-fixtures connected with baths and basins, for the quick discharge through waste-pipes, I find them to be the best and most thorough working of anything in existence at the present time. It fills a want long looked for, regarding a strong flush through waste-pipes, as by the simple lifting-lever connected with the stand overflow-pipe, it allows the whole contents to discharge at once, and the tube, being suspended in its place, saves the bath-tub and basin, or pantry-sink, from being injured by the careless dropping of the tube from the hands of the person using the same. Regarding the 'Sanitas' trap, it is perfect regarding self-scouring and sure seal against sewer-gas—being simple in its arrangement for cleansing and sure protection against syphon action from discharge of any fixture, on line to which it may be connected. I shall always use and recommend them on all my work."

WILLIAM MILLS & CO.,

plumbers, of Boston, write: "We find the "Sanitas" Trap, applied to wash-basins, the most simple, safe, and effective device we have ever known."

WILLIAM E. SHERRIFFS,

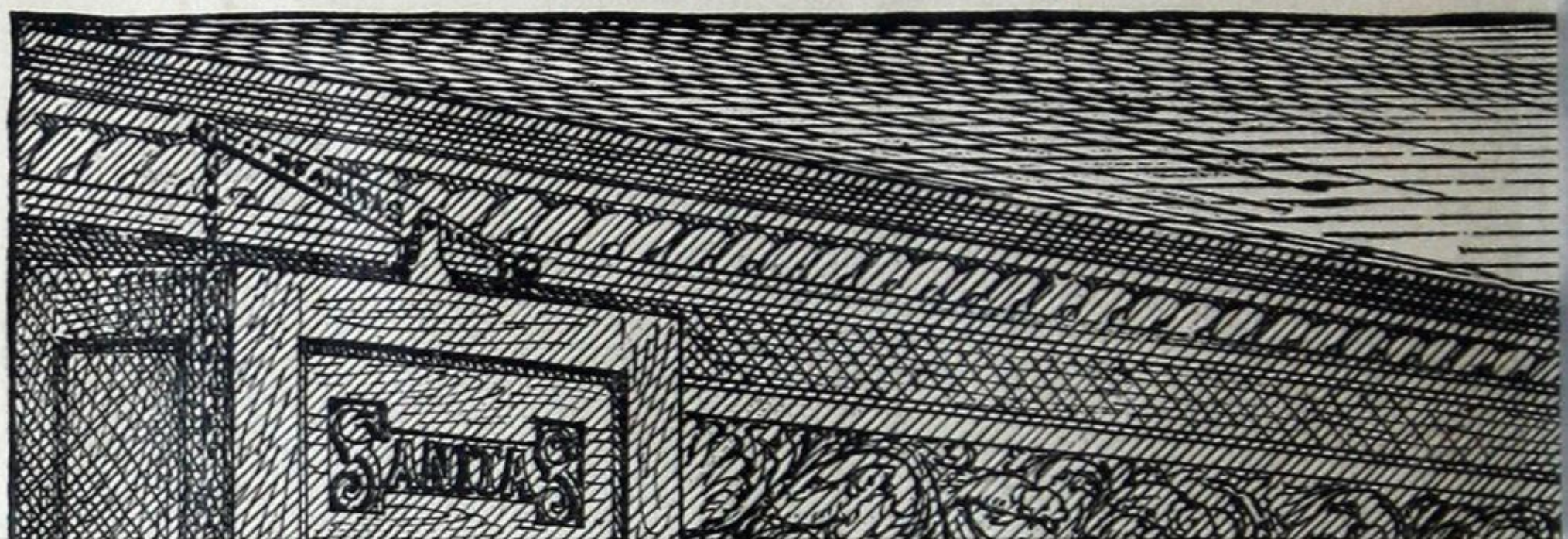
plumber, of Boston, writes: "I can with pleasure recommend the "Sanitas" Bowl, without exception the most perfect hand wash-bowl known in the trade; no hair, matches, or pins can clog the outlet, and no overflow putty joint to crack, thereby wetting down and destroying your ceilings, as is the constant trouble with the ordinary marble wash-bowl. As regards the "Sanitas" Trap I am forced to acknowledge its anti-siphonage qualities by actual test, having attached it to a line of wash-bowls where I found the waste only one inch bore, and carried a long distance before connecting to the main soil-pipe. Although some noise was created, by the passage of water, the result was satisfactory, and the water seal intact; owing to expense, back venting was impracticable."

ISAAC N. TUCKER,

plumber, of Boston, writes: "I have used your Bath-tubs, Pantry-sinks, Wash-basins, and Traps, and they have given very good satisfaction."



VIEW OF BATH-ROOM F
SANITAS PLUMBI



FRANKLIN
INSTITUTE
LIBRARY

TED UP WITH THE
APPLIANCES

